



# **STIC Search Report**

## **Biotech-Chem Library**

**STIC Database Tracking Number: 154428**

**TO: Jezia Riley**  
**Location: 2a31 / 2c18**  
**Thursday, May 26, 2005**  
**Art Unit: 1637**  
**Phone: 571-272-0786**  
**Serial Number: 10 / 056917**

**From: Jan Delaval**  
**Location: Biotech-Chem Library**  
**Remsen 1a51**  
**Phone: 571-272-2504**

**jan.delaval@uspto.gov**

### **Search Notes**

1511409  
**SEARCH REQUEST FORM**

Examiner # (Mandatory): 73411 Requester's Full Name: Teria Riley  
Art Unit 1637 Location (Bldg/Room#): Rem 2A31 Mail Box 2C18 Phone (circle 305 306 308) 20786  
Serial Number: 101056,917 Results Format Preferred (circle): PAPER DISK E-MAIL  
Title of Invention \_\_\_\_\_  
Inventors (please provide full names): \_\_\_\_\_

Earliest Priority Date: \_\_\_\_\_

Keywords (include any known synonyms registry numbers, explanation of initialisms):

Please do a structure search (see attached  
claims.)

Thank you

RECEIVED  
MAY 25 2001  
STIC

**Search Topic:**

Please write detailed statement of the search topic, and the concept of the invention. Describe as specifically as possible the subject matter to be searched. Define any terms that may have a special meaning. Give examples of relevant citations, authors, etc., if known. You may include a copy of the abstract and the broadcast or most relevant claim(s).

C. Chan  
Rush

**STAFF USE ONLY**

Searcher: Jan  
Searcher Phone #: 22504  
Searcher Location: \_\_\_\_\_  
Date Picked Up: 5/24/01  
Date Completed: 5/24/01  
Clerical Prep Time: \_\_\_\_\_  
Terminal Time: 1:00  
Number of Databases: 1940

Type of Search	Vendors (include cost where applicable)
<input type="checkbox"/> N.A. Sequence	<input checked="" type="checkbox"/> STN
<input type="checkbox"/> A.A. Sequence	<input type="checkbox"/> Questel/Orbit
<input checked="" type="checkbox"/> Structure (#)	<input type="checkbox"/> Lexis/Nexis
<input type="checkbox"/> Bibliographic	<input type="checkbox"/> WWW/Internet
<input type="checkbox"/> Litigation1	<input type="checkbox"/> In-house sequence systems (list)
<input type="checkbox"/> Fulltext	<input type="checkbox"/> Dialog
<input type="checkbox"/> Procurement	<input type="checkbox"/> Dr. Link
<input type="checkbox"/> Other	<input type="checkbox"/> Westlaw
	<input type="checkbox"/> Other (specify)

=> fil hcaplus

FILE 'HCAPLUS' ENTERED AT 09:43:58 ON 26 MAY 2005

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FILE COVERS 1907 - 26 May 2005 VOL 142 ISS 22

FILE LAST UPDATED: 25 May 2005 (20050525/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d his

(FILE 'HOME' ENTERED AT 08:11:39 ON 26 MAY 2005)

SET COST OFF

FILE 'HCAPLUS' ENTERED AT 08:12:10 ON 26 MAY 2005

L1 2 S (US20030039992 OR US20050042627)/PN OR (US2002-056917# OR US2  
E CHAKRABARTI R/AU  
L2 106 S E3-E7,E10,E11  
E SCHUTT C/AU  
L3 87 S E3,E4,E9,E10  
E PRINCETON/PA,CS  
L4 43072 S E1-E4 OR PRINCETON?/PA,CS  
E NUCLEIC ACID AMPLIFICATION/CT  
L5 7787 S E4-E6  
E E4+ALL  
L6 63001 S E2+NT  
E AMPLIFICATION/CT  
E AMPLIFICATION/CT  
E E3+ALL  
L7 187 S E2  
L8 4440 S E4  
E E6+ALL  
E E1+ALL  
L9 7 S L1-L3 AND L5-L8  
L10 193440 S PCR OR POLYMERASE? (L) CHAIN? (L) REACTION?  
L11 7 S L1-L3 AND L10  
L12 8 S L9,L11  
L13 5 S L1-L3 AND ?AMPLIF?  
L14 1 S L1-L3 AND ?REPLICAT?  
L15 8 S L1,L9,L11-L14  
L16 81 S L4 AND L5-L8,L10  
L17 632 S L4 AND (?AMPLIF? OR ?REPLICAT?)  
L18 35 S L16 AND L17

L19 5 S L15 AND L16-L18  
 L20 8 S L15,L19  
 L21 180 S L1-L3 NOT L20  
 SEL RN L20

FILE 'REGISTRY' ENTERED AT 08:23:34 ON 26 MAY 2005

L22 62 S E1-E62  
 L23 7 S 1600-44-8 OR 126-33-0 OR 70769-71-0 OR 4253-91-2 OR 67-71-0 O  
 L24 2 S 9012-90-2 OR 9068-38-6  
 E TAQ/CN  
 E TTH/CN  
 E TME/CN  
 E TLI/CN  
 E PFU/CN  
 E DNA POLYMERASE/CN  
 E DNA POLYMERASE I/CN  
 L25 1 S E3  
 E KLENOW/CN  
 E POLYMERASE  
 L26 9647 S E3,E4  
 E NUCLEOTIDYLTRANSFERASE  
 L27 9512 S E2-E4 (L) DEOXYRIBONUCLEATE  
 L28 5039 S L26 (L) DNA  
 L29 13816 S L24,L25,L27,L28  
 L30 4558 S L26 NOT L29

FILE 'HCAPLUS' ENTERED AT 08:29:52 ON 26 MAY 2005

L31 49695 S L29  
 L32 28550 S L30  
 L33 76638 S L31,L32  
 L34 264176 S L10,L33  
 L35 67121 S L5-L8  
 L36 55524 S L34 AND L35  
 L37 5733 S L23  
 L38 151 S TETRAMETHYLENESULFONE OR TETRAMETHYLENESULPHONE OR TETRAMETHY  
 L39 922 S (TETRAMETHYLENE OR TETRA METHYLENE) () (SULFONE OR SULPHONE OR  
 L40 0 S TETRA () (METHYLENESULFONE OR METHYLENESULPHONE OR METHYLENESUL  
 L41 1675 S METHYLSULFONE OR METHYLSULPHONE OR METHYL () (SULFONE OR SULPHO  
 L42 466 S ETHYLSULFONE OR ETHYLSULPHONE OR ETHYL () (SULFONE OR SULPHONE)  
 L43 154 S PROPYLSULFONE OR PROPYLSULPHONE OR PROPYL () (SULFONE OR SULPHO  
 L44 150 S PROPYLSULFOXIDE OR PROPYLSULPHOXIDE OR PROPYL () (SULFOXIDE OR  
 L45 1 S METHYL () (S OR SEC) () BUTYL () (SULFOXIDE OR SULPHOXIDE)  
 L46 130 S METHYLSULFONYLMETHANE OR METHYLSULPHONYLMETHANE OR METHYL () (S  
 L47 62 S (METHYLSULFONYL OR METHYLSULPHONYL) () METHANE  
 L48 83 S TETRAHYDROTHIOPHENEDIOXIDE OR TETRAHYDROTHIOPHENE DIOXIDE OR  
 L49 156 S DIETHYLSULFONE OR DIETHYLSULPHONE OR (DIETHYL OR DI ETHYL OR  
 L50 35 S DIPROPYLSULFONE OR DIPROPYLSULPHONE OR (DIPROPYL OR DI PROPYL  
 L51 1006 S DIMETHYLSULFONE OR DIMETHYLSULPHONE OR (DIMETHYL OR DI METHYL  
 L52 4759 S SULFOLAN# OR SULPHOLAN#  
 L53 91 S DIPROPYLSULFOXIDE OR DIPROPYLSULPHOXIDE OR (DIPROPYL OR DI PR  
 L54 313 S (TETRAHYDROTHIOPHENE OR TETRA HYDROTHIOPHENE OR TETRAHYDRO TH  
 L55 61 S THIOLANE 1 1 DIOXIDE  
 L56 6 S THIOLANE S OXIDE  
 L57 10151 S L37-L56  
 L58 17 S L57 AND L34  
 L59 5 S L57 AND L35  
 L60 17 S L58,L59  
 L61 295086 S L34 OR DNASE OR DNA POLYMERASE OR ?POLYMERASE?  
 L62 19 S L61 AND L57  
 L63 19 S L60,L62



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                SEL DN AN 1 5 6 8 10-16
L64             11 S L63 AND E1-E31
L65             15 S L2,L3 AND L61
L66             3 S L2,L3 AND L57
L67             7 S L2,L3 AND L35
L68             16 S L20,L65-L67
                SEL DN AN 5 8 10-16
L69             7 S L68 NOT E32-E58
L70             15 S L64,L69
L71             15 S L70 AND L1-L21,L31-L70

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FILE 'REGISTRY' ENTERED AT 08:56:09 ON 26 MAY 2005

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L72             7 S L22 AND L23
L73             2 S L22 AND L24-L30
L74             53 S L22 NOT L72,L73
L75             37 S L74 NOT SQL/FA
L76             5 S L75 AND S/ELS
L77             17 S L75 AND N/ELS
L78             15 S L77 NOT OC4/ES
                SEL RN 6 9 12 13 15
L79             12 S L77 NOT E59-E63
L80             5 S L78 NOT L79
L81             10 S L78 AND L79
L82             15 S L76,L81
L83             15 S L75 NOT L76-L82

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FILE 'HCAPLUS' ENTERED AT 09:04:36 ON 26 MAY 2005

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                SET SMARTSELECT ON
L84             SEL L21 1- RN :      302 TERMS
                SET SMARTSELECT OFF

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FILE 'REGISTRY' ENTERED AT 09:04:42 ON 26 MAY 2005

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L85             302 S L84
L86             0 S L85 AND L23
L87             1 S L85 AND L24-L30
L88             299 S L85 NOT L22
L89             297 S L88 NOT SQL/FA
L90             49 S L89 AND S/ELS
L91             88 S L89 AND N/ELS NOT L90
L92             1 S L91 AND C6H11NO

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FILE 'HCAPLUS' ENTERED AT 09:07:58 ON 26 MAY 2005

FILE 'REGISTRY' ENTERED AT 09:16:25 ON 26 MAY 2005

FILE 'HCAPLUS' ENTERED AT 09:19:39 ON 26 MAY 2005

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L93             166 S L92
L94             0 S L93 AND L61
L95             0 S L93 AND L35

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FILE 'REGISTRY' ENTERED AT 09:20:33 ON 26 MAY 2005

FILE 'HCAPLUS' ENTERED AT 09:20:56 ON 26 MAY 2005

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L96             76684 S L82
L97             390 S L96 AND L61
L98             154 S L97 AND L35
L99             3 S L97 AND L1-L3
L100            15 S L71,L99
L101            151 S L98 NOT L100
L102            61 S L101 AND (BIOCHEM?(L)METHOD?)/SC,SX

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L103 134 S L101 AND (BIOCHEM?(L)GENETIC?)/SC,SX  
L104 146 S L102,L103  
L105 5 S L101 NOT L104  
L106 91 S L104 AND P/DT  
L107 55 S L104 NOT L106  
L108 41 S L107 AND PY<=2001  
L109 0 S L108 AND ?NUCELOTIDE?  
E POLYNUCLEOTIDE/CT  
L110 0 S L108 AND E8-E10  
L111 1 S L108 AND E8+OLD,NT,PFT,RT  
E NUCLEIC ACIDS/CT  
L112 27 S L108 AND E3+OLD,NT,PFT,RT  
L113 0 S L108 AND E11-E16  
L114 26 S L112 AND (DMSO OR DIMETHYL SULFOXIDE)  
L115 1 S L112 NOT L114

FILE 'REGISTRY' ENTERED AT 09:27:08 ON 26 MAY 2005

L116 14 S L82 NOT C2H6OS

FILE 'HCAPLUS' ENTERED AT 09:27:41 ON 26 MAY 2005

L117 55790 S L116  
L118 92 S L117 AND L61  
L119 30 S L118 AND L35  
L120 3 S L119 AND L71  
L121 27 S L119 NOT L120  
L122 64 S L118 AND P/DT  
L123 28 S L118 NOT L122  
L124 25 S L123 AND PY<=2001  
SEL DN AN 4 12 16 21  
L125 4 S L124 AND E1-E12  
L126 48 S L122 AND (PD<=20010130 OR PRD<=20010130 OR AD<=20010130)  
SEL DN AN 5 8 9 11 12 15 19 22 25 26 28 31 32 35 38 42 44  
L127 17 S L126 AND E13-E63  
L128 34 S L71,L120,L125,L127  
L129 34 S L128 AND L1-L21,L31-L71,L93-L115,L117-L128  
SEL HIT RN

FILE 'REGISTRY' ENTERED AT 09:37:30 ON 26 MAY 2005

L130 30 S E64-E93  
L131 8 S L130 AND L24-L30  
L132 22 S L130 NOT L131  
L133 20 S L132 NOT (C2H6OS OR C2H6O2S)  
L134 2 S L132 NOT L133

FILE 'HCAPLUS' ENTERED AT 09:39:26 ON 26 MAY 2005

L135 25 S L133 AND L129  
L136 9 S L129 NOT L135  
L137 3 S L136 AND L1-L3  
L138 28 S L135,L137  
L139 6 S L136 NOT L138  
SEL DN AN 2  
L140 1 S E94-E96 AND L139  
L141 29 S L138,L140

FILE 'HCAPLUS' ENTERED AT 09:43:58 ON 26 MAY 2005

=> d l141 all hitstr tot

L141 ANSWER 1 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN  
AN 2005:160723 HCAPLUS

DN 142:255737  
 ED Entered STN: 25 Feb 2005  
 TI Methods for polynucleotide **amplification** at low temperature  
 IN Chakrabarti, Raj; Schutt, Clarence  
 PA USA  
 SO U.S. Pat. Appl. Publ., 35 pp., Cont.-in-part of U.S. Ser. No. 56,917.  
 CODEN: USXXCO  
 DT Patent  
 LA English  
 IC ICM C12Q001-68  
 ICS C12P019-34  
 INCL 435006000; 435091200  
 CC 3-1 (Biochemical Genetics)  
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2005042627	A1	20050224	US 2004-792404	20040303 <--
	US 2003039992	A1	20030227	US 2002-56917	20020125 <--
PRAI	US 2002-56917	A2	20020125	<--	
	US 2003-451642P	P	20030304		
	US 2003-451650P	P	20030304		
	US 2001-264935P	P	20010130	<--	
	US 2001-298166P	P	20010614	<--	
	US 2001-298250P	P	20010614	<--	

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2005042627	ICM	C12Q001-68
	ICS	C12P019-34
	INCL	435006000; 435091200
US 2005042627	NCL	435/006.000; 435/091.200 <--
US 2003039992	NCL	435/006.000 <--

AB The invention relates to a composition and method for performing a polynucleotide **amplification** reaction at low temperature, including a polynucleotide **amplification** reaction mixture into which is incorporated a sufficiently high concentration of a low mol. weight compound selected

from the group consisting of amides, sulfones, sulfoxides and diols, to accomplish the **amplification** at the low temperature The invention also relates to a composition and method for enhancing a polynucleotide **amplification** reaction, including a polynucleotide **amplification** reaction mixture into which is incorporated a low mol. weight diol in an amount effective to enhance the polynucleotide **amplification**.

ST polynucleotide **amplification** low temp

IT Nucleic acid **amplification** (method)  
 (low temperature; methods for polynucleotide **amplification** at low temperature)

IT Buffers  
 (methods for polynucleotide **amplification** at low temperature)

IT Amides, reactions  
 Glycols, reactions  
 Sulfones  
 Sulfoxides

RL: RGT (Reagent); RACT (Reactant or reagent)  
 (methods for polynucleotide **amplification** at low temperature)

IT 57-55-6, 1,2-Propanediol, reactions 107-21-1, Ethylene glycol, reactions  
 107-41-5, 2-Methyl-2,4-pentanediol 107-88-0, 1,3-Butanediol 110-63-4,  
 1,4-Butanediol, reactions 111-29-5, 1,5-Pentanediol 504-63-2,  
 1,3-Propanediol 584-03-2, 1,2-Butanediol 625-69-4, 2,4-Pentanediol

629-11-8, 1,6-Hexanediol 5057-98-7, cis-1,2-Cyclopentanediol  
5057-99-8, trans-1,2-Cyclopentanediol 5343-92-0, 1,2-Pentanediol  
6920-22-5, 1,2-Hexanediol 29348-79-6, Pentanediol  
RL: RGT (Reagent); RACT (Reactant or reagent)

(methods for polynucleotide **amplification** at low temperature)

IT 845839-88-5 845839-89-6 845839-90-9 845839-91-0 845839-92-1  
845839-93-2 845839-94-3 845839-95-4

RL: PRP (Properties)

(unclaimed nucleotide sequence; methods for polynucleotide  
**amplification** at low temperature)

L141 ANSWER 2 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:713934 HCAPLUS

DN 141:375224

ED Entered STN: 01 Sep 2004

TI Characterization of the synthetic compatible solute homoectoine as a  
potent **PCR** enhancer

AU Schnoor, Michael; Voss, Peter; Cullen, Paul; Boeking, Thomas; Galla,  
Hans-Joachim; Galinski, Erwin A.; Lorkowski, Stefan

CS Institute of Arteriosclerosis Research, Institute of Biochemistry,  
University of Muenster, Germany

SO Biochemical and Biophysical Research Communications (2004), 322(3),  
867-872

CODEN: BBRCA9; ISSN: 0006-291X

PB Elsevier

DT Journal

LA English

CC 3-1 (Biochemical Genetics)

Section cross-reference(s): 9

AB Different substances such as DMSO, **tetramethylene**  
**sulfoxide**, 2-pyrrolidone, and the naturally occurring compatible  
solute betaine enhance **PCR** amplification of GC-rich DNA  
templates with high melting temps. In particular, cyclic compatible  
solutes outperform traditional **PCR** enhancers. The authors  
therefore investigated the effects that cyclic naturally occurring  
ectoine-type compatible solutes and their synthetic derivs. have on  
melting temperature of double-stranded DNA (dsDNA) and on **PCR**  
amplification of different templates. L-Ectoine, betaine, and derivs. of  
L-ectoine decreased, whereas  $\beta$ -hydroxyectoine increased, the melting  
temperature of dsDNA. The ability to decrease the melting temperature was  
greatest

for homoectoine, a new synthetic derivative of L-ectoine. Furthermore,  
compatible solutes, especially homoectoine, enhanced **PCR** amplification  
of GC-rich DNA (72.6% GC content; effective range: 0.1-0.5 M).

ST solute homoectoine **PCR** enhancer; DNA melting ectoine homoectoine  
hydroxyectoine betaine

IT DNA

RL: PRP (Properties)

(double-stranded, ectoine-type compatible solutes effect on melting  
temperature of dsDNA; synthetic compatible solute homoectoine as potent  
**PCR** enhancer)

IT **PCR** (polymerase chain reaction)

(synthetic compatible solute homoectoine as potent **PCR**  
enhancer)

IT 107-43-7, Betaine 96702-03-3 165542-15-4,  $\beta$ -Hydroxyectoine

RL: BSU (Biological study, unclassified); BIOL (Biological study)

(ectoine-type compatible solutes effect on melting temperature of dsDNA;  
synthetic compatible solute homoectoine as potent **PCR**  
enhancer)

IT 783339-87-7, Homoectoine

RL: ARU (Analytical role, unclassified); BSU (Biological study, unclassified); BUU (Biological use, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(synthetic compatible solute homoectoine as potent PCR enhancer)

RE.CNT 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Bellosta, S; Nutr Metab Cardiovasc Dis 2002, V12, P3 MEDLINE
- (2) Bolen, D; J Mol Biol 2001, V310, P955 HCAPLUS
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- (4) Chakrabarti, R; Gene 2001, V274, P293 HCAPLUS
- (5) Chakrabarti, R; Nucleic Acids Res 2001, V29, P2377 HCAPLUS
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- (16) Lapidot, A; Int Patent Appl WO9941410 1999
- (17) Lippert, K; Appl Microbiol Biotechnol 1992, V37, P61 HCAPLUS
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- (19) Lorkowski, S; Biochem Biophys Res Commun 2001, V283, P821 HCAPLUS
- (20) Malin, G; J Biol Chem 1999, V274, P6920 HCAPLUS
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- (23) Mullis, K; Cold Spring Harb Symp Quant Biol 1986, V51, P263 HCAPLUS
- (24) Pomp, D; Biotechniques 1991, V10, P58 HCAPLUS
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- (26) Timasheff, S; Adv Protein Chem 1998, V51, P355 HCAPLUS
- (27) Wiggins, P; Microbiol Rev 1990, V54, P432 HCAPLUS

L141 ANSWER 3 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:22200 HCAPLUS

DN 140:177503

ED Entered STN: 12 Jan 2004

TI Novel PCR-enhancing compounds and their modes of action

AU Chakrabarti, Raj

CS Department of Chemistry, Massachusetts Institute of Technology, Cambridge, MA, USA

SO PCR Technology (2nd Edition) (2004), 51-63. Editor(s): Weissensteiner, Thomas; Griffin, Hugh G.; Griffin, Annette. Publisher: CRC Press LLC, Boca Raton, Fla.

CODEN: 69EYN6; ISBN: 0-8493-1184-5

DT Conference

LA English

CC 9-1 (Biochemical Methods)

Section cross-reference(s): 3

AB A wide variety of novel **polymerase chain reaction (PCR)**-enhancing cosolvents, which together constitute a library of chems. for PCR optimization, were identified and characterized. In many cases, it has been possible to qual. correlate the yield and effective concentration range of these compds. with

their impact on the reaction.

ST **polymerase chain reaction** cosolvent

IT Solvents

(cosolvents; novel PCR-enhancing compds. and their modes of action)

IT DNA  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(melting; novel PCR-enhancing compds. and their modes of action)

IT PCR (polymerase chain reaction)  
(novel PCR-enhancing compds. and their modes of action)

IT Solvents  
(organic; novel PCR-enhancing compds. and their modes of action)

IT 9012-90-2  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(Tag; novel PCR-enhancing compds. and their modes of action)

RE.CNT 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Blake, R; Nucleic Acids Res 1996, V24, P2095 HCAPLUS
- (2) Breslauer, K; Methods in Molecular Biology: Protocols for Oligonucleotide Conjugates 1994, V26 HCAPLUS
- (3) Chakrabarti, R; BioTechniques 2002, V32 HCAPLUS
- (4) Chakrabarti, R; Gene 2001, V274, P293 HCAPLUS
- (5) Chakrabarti, R; Nucleic Acids Res 2001, V29, P2377 HCAPLUS
- (6) Chakrabarti, R; PCR enhancement by organic solvents: progress toward the development of chemical PCR 2002
- (7) Chou, Q; Nucleic Acids Res 1992, V20, P4371 HCAPLUS
- (8) Das, S; US 6143504 2000 HCAPLUS
- (9) Del Vecchio, P; Int J Biol Macromol 1999, V24, P361 HCAPLUS
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- (20) Sarkar, G; Nucleic Acids Res 1990, V18, P7465 HCAPLUS
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- (28) Weaver, D; J Mol Biol 1984, V180, P961 HCAPLUS
- (29) Weissensteiner, T; DE 4411588 1995 HCAPLUS
- (30) Weissensteiner, T; BioTechniques 1996, V21, P1102 HCAPLUS
- (31) Winship, P; Nucleic Acids Res 1989, V17, P1266 HCAPLUS

IT 9012-90-2  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(Tag; novel PCR-enhancing compds. and their modes of action)

RN 9012-90-2 HCAPLUS

CN Nucleotidyltransferase, deoxyribonucleate (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

L141 ANSWER 4 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN  
AN 2002:907069 HCAPLUS  
DN 138:1959  
ED Entered STN: 29 Nov 2002

TI Compositions, methods, and kits for isolating nucleic acids using  
 surfactants and proteases  
 IN Greenfield, Lawrence; Montesclaros, Luz  
 PA Applera Corp., USA  
 SO U.S. Pat. Appl. Publ., 57 pp., Cont.-in-part of U.S. Ser. No. 724,613.  
 CODEN: USXXCO  
 DT Patent  
 LA English  
 IC ICM C12Q001-68  
 ICS C12N001-08  
 INCL 435006000; 435270000  
 CC 9-9 (Biochemical Methods)  
 Section cross-reference(s): 3  
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002177139	A1	20021128	US 2001-997169	20011128 <--
	US 6762027	B2	20040713		
	US 2005009045	A1	20050113	US 2004-800137	20040311 <--
PRAI	US 2000-724613	A2	20001128	<--	
	US 2001-997169	A1	20011128		

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2002177139	ICM	C12Q001-68
	ICS	C12N001-08
	INCL	435006000; 435270000
US 2002177139	NCL	435/006.000; 435/243.000; 536/023.100; 536/026.420; 536/027.120
	ECLA	C12N015/10A2 <--
US 2005009045	NCL	435/006.000; 435/270.000
	ECLA	C12N015/10A2 <--

AB The invention relates to compns. and methods for isolating nucleic acids from biol. samples, including whole tissue. The invention also provides kits for isolating nucleic acids from biol. samples. A method for obtaining nucleic acid from a biol. sample and binding the nucleic acid to a solid phase comprises (a) contacting the biol. sample with a disrupting buffer, wherein the disrupting buffer comprises a protease and a cationic surfactant; (b) substantially neutralizing the cationic surfactant; and (c) binding the nucleic acid to a solid phase. Genomic DNA was isolated from several rat tissues and mouse tail using a digestion solution containing 1 mg of Proteinase K, 1 % DTAB, 100 mM Tris-HCl (pH 8.0), 20 µM ATA, and 20 mM CaCl<sub>2</sub> and incubating for 60 min at 65°. Most of the tissues were effectively digested in less than one hour. Digestion of liver, brain and kidney were about 95 % complete after one hour. Following digestion, binding solution containing 5 M GuSCN, 50 mM MES (pH 6.0), 20 mM

EDTA, and 6 % Tween 20 was then added to each sample and the samples were placed on GF/B filter membranes for washing and recovery of DNA.

ST nucleic acid isolation surfactant protease; kit nucleic acid isolation surfactant protease; DNA tissue isolation proteinase K DTAB

IT Bentonite, uses

RL: NUU (Other use, unclassified); USES (Uses)  
 (RNase inhibitor, disrupting buffer containing; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT Thermus

(Rt41A, thermostable protease of; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT Bacillus licheniformis

Streptomyces griseus

(alkaline serine protease from; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT Quaternary ammonium compounds, biological studies  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(alkylbenzyltrimethyl, chlorides, cationic surfactant, effect on proteinase K activity; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT Quaternary ammonium compounds, biological studies  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(alkyltrimethyl, bromides, cationic surfactant, effect on proteinase K activity; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT Samples  
(biol.; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT Surfactants  
(cationic; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT Animal tissue  
Biological materials  
Liver  
Plant tissue  
Structure-activity relationship  
Surfactants  
(compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT Salts, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT Nucleic acids  
RL: PUR (Purification or recovery); PREP (Preparation)  
(compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT Buffers  
(disrupting; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT Cations  
(divalent, chelator for, as DNase inhibitor; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT Filters  
(fiber, glass, DNA reversible binding to; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT Glass fibers, reactions  
RL: DEV (Device component use); RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)  
(filters or membranes, DNA reversible binding to; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT Chelating agents  
(for divalent cations, as DNase inhibitor; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT Brain  
Kidney  
Lung  
Muscle  
Pancreas  
(genomic DNA isolation from rat; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT Mus



(genomic DNA isolation from tail of; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT Tail, anatomical  
(genomic DNA purification from rat; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT Rattus  
(genomic DNA purification from tails of; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT DNA  
RL: PUR (Purification or recovery); PREP (Preparation)  
(genomic; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT Surfactants  
(nonionic; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT Amines, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(polyamines, nonpolymeric, RNase inhibitor, disrupting buffer containing; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT Intestine  
(small, genomic DNA isolation from rat; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT Bacillus thermoproteolyticus rokko  
(thermostable protease of; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT Kidney  
Lung  
(toxicity, genomic DNA isolation from rat; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT Liver  
(toxicity; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT 64-69-7 75-12-7, Formamide, uses 90-45-9, 9-Aminoacridine 124-20-9, Spermidine 1074-12-0, Phenylglyoxal 1113-59-3 4431-00-9, Aurintricarboxylic acid 7440-50-8, Copper, uses 7440-62-2D, Vanadium, complexes with ribonucleotides 7440-66-6, Zinc, uses 7733-02-0, Zinc sulfate 24645-80-5, p-Hydroxyphenylglyoxal 165281-56-1  
RL: NUU (Other use, unclassified); USES (Uses)  
(RNase inhibitor, disrupting buffer containing; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

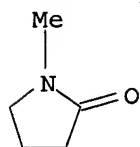
IT 60-00-4, EDTA, uses 67-42-5, EGTA 67-43-6, DTPA  
RL: NUU (Other use, unclassified); USES (Uses)  
(as divalent cation chelator for inhibiting DNase; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT 1185-53-1, Tris hydrochloride  
RL: NUU (Other use, unclassified); USES (Uses)  
(buffer containing; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)

IT 122-18-9, Benzyldimethylhexadecylammonium chloride 122-19-0, Mackernium SDC-85 139-08-2, Benzyldimethyltetradecylammonium chloride 151-21-3, Sodium Dodecyl Sulfate, biological studies 3529-04-2, Benzyldimethylhexadecylammonium bromide 7281-04-1, Benzyldimethyldodecylammonium bromide 26062-79-3, Mackernium 006 26590-05-6, Mackernium 007 37139-99-4, Olealkonium chloride 475143-78-3, Mackernium WLE 475143-79-4, Quaternium 84  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(cationic surfactant, effect on proteinase K activity; compns., methods, and kits for isolating nucleic acids using surfactants and

- proteases)
- IT 57-09-0, Cetyltrimethylammonium bromide 112-00-5, Dodecyltrimethylammonium chloride 112-02-7, Cetyltrimethylammonium chloride 1119-94-4, Dodecyltrimethylammonium bromide 1119-97-7, Tetradecyltrimethylammonium bromide 2082-84-0, Decyltrimethylammonium bromide 4574-04-3, Tetradecyltrimethylammonium chloride 15510-55-1, Dodecyltriphenylphosphonium bromide 68207-00-1, Dodecylethyldimethylammonium bromide  
RL: NUU (Other use, unclassified); USES (Uses)  
(cationic surfactant; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)
- IT 9014-01-1, Subtilisin 9073-78-3, Thermolysin 37259-58-8, Proteinase R 39450-01-6, Proteinase K 42613-33-2, Dispace 180984-02-5, Subtilase  
RL: CAT (Catalyst use); USES (Uses)  
(compns., methods, and kits for isolating nucleic acids using surfactants and proteases)
- IT 50-01-1, Guanidine hydrochloride 65-61-2, Acridine orange 137-16-6, Sarkosyl 540-72-7, Sodium thiocyanate 593-84-0, Guanidine thiocyanate 7447-41-8, Lithium chloride (LiCl), uses 7550-35-8, Lithium bromide (LiBr) 7647-15-6, Sodium bromide (NaBr), uses 7681-82-5, Sodium iodide (NaI), uses 10043-52-4, Calcium chloride, uses 10377-51-2, Lithium iodide (LiI) 145224-94-8  
RL: NUU (Other use, unclassified); USES (Uses)  
(compns., methods, and kits for isolating nucleic acids using surfactants and proteases)
- IT 7601-89-0, Sodium perchlorate 7681-11-0, Potassium iodide, uses 7789-17-5, Cesium iodide (CsI) 7790-29-6, Rubidium iodide (RbI)  
RL: NUU (Other use, unclassified); USES (Uses)  
(detergent solubility in relation to; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)
- IT 75-57-0, Tetramethylammonium chloride 127-09-3, Sodium acetate 872-50-4, 1-Methyl-2-Pyrrolidinone, uses 1112-67-0, Tetrabutylammonium chloride 7647-14-5, Sodium chloride, uses 9005-79-2, Glycogen, uses 13595-73-8, 1-Hexanesulfonic acid 20283-21-0, 1-Decanesulfonic acid  
RL: NUU (Other use, unclassified); USES (Uses)  
(in solubilization of CTAB-nucleic acid precipitate; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)
- IT 9001-99-4, Ribonuclease  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(inhibitor, disrupting buffer containing; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)
- IT 9003-98-9, Deoxyribonuclease  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(inhibitor; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)
- IT 1338-39-2, Span 20 9002-92-0, Brij 30 9002-93-1, Triton X-100 9005-64-5, Tween 21 9005-65-6, Tween 80 9005-66-7, Tween 40 9005-67-8, Tween 60 9005-70-3, Tween 85 9036-19-5, IGEPAL CA-630  
RL: NUU (Other use, unclassified); USES (Uses)  
(nonionic surfactant; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)
- IT 9001-92-7, Protease  
RL: CAT (Catalyst use); USES (Uses)  
(protease; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)
- RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD
- RE
- (1) Anon; WO 9515970 1995 HCAPLUS
- (2) Anon; WO 9804730 1998 HCAPLUS

- (3) Anon; WO 9820164 1998 HCAPLUS  
(4) Anon; EP 1018549 A1 2000 HCAPLUS  
(5) Anon; DE 19937607 A1 2001 HCAPLUS  
(6) Anon; US 0145071 2002  
(7) Chapdelaine, P; BioTechniques 1993, V14(2), P163 HCAPLUS  
(8) Colosi, J; Nucleic Acid Research 1993, V21(4), P1051 HCAPLUS  
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(10) Downs; US 4481294 A 1984 HCAPLUS  
(11) Dry, P; Nucleic Acids Research 1988, V16(15), P7730 HCAPLUS  
(12) Fisher, J; FASEB Journal 1988, Abstract 4823  
(13) Goldenberger, D; PCR Methods and Applications 1995, V4, P368 HCAPLUS  
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(15) Laird, P; Nucleic Acids Research 1991, V19(15), P4293 HCAPLUS  
(16) Lienau; US 6548256 B2 2003 HCAPLUS  
(17) Macfarlane; US 5010183 A 1991 HCAPLUS  
(18) Macfarlane; US 5300635 A 1994 HCAPLUS  
(19) Macfarlane; US 5728822 A 1998 HCAPLUS  
(20) Macfarlane, D; Journal of Clinical Laboratory Analysis 1997, V11, P132 HCAPLUS  
(21) Macfarlane, D; Nature 1993, V362, P186 MEDLINE  
(22) Rauber, N; Naturforsch 1978, V33, Pc:660  
(23) Richards, E; Preparation of Genomic DNA from Plant Tissue in Current Protocols in Molecular Biology 1994, V1, P2.3.3  
(24) Schneider; US 5596092 A 1997 HCAPLUS  
(25) Seibert, G; Z. Naturforsch Sect. C. Biosci 1977, V32(3-4), P294  
(26) Van Ness; US 5130423 A 1992 HCAPLUS  
(27) Wieggers, U; Biochemical and Biophysical Research Communications 1971, V44(2), P513 HCAPLUS  
(28) Wilson, K; Preparation of Genomic DNA from Bacteria" in Current Protocols in Molecular Biology 1994, V1, P2.4.1  
IT 872-50-4, 1-Methyl-2-Pyrrolidinone, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(in solubilization of CTAB-nucleic acid precipitate; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)  
RN 872-50-4 HCAPLUS  
CN 2-Pyrrolidinone, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



- IT 9003-98-9, Deoxyribonuclease  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(inhibitor; compns., methods, and kits for isolating nucleic acids using surfactants and proteases)  
RN 9003-98-9 HCAPLUS  
CN Nuclease, deoxyribo- (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

L141 ANSWER 5 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN  
AN 2002:771094 HCAPLUS  
DN 138:199342  
ED Entered STN: 10 Oct 2002  
TI PCR enhancement by organic solvents: progress toward the development of chemical PCR

AU Chakrabarti, Raj  
 CS Princeton Univ., Princeton, NJ, USA  
 SO (2002) 269 pp. Avail.: UMI, Order No. DA3039696  
 From: Diss. Abstr. Int., B 2002, 63(1), 236  
 DT Dissertation  
 LA English  
 CC 3-1 (Biochemical Genetics)  
 AB Unavailable  
 ST PCR org solvent  
 IT PCR (polymerase chain reaction)  
 (PCR enhancement by organic solvents)  
 IT Solvents  
 (organic; PCR enhancement by organic solvents)

L141 ANSWER 6 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2002:595132 HCAPLUS

DN 137:151980

ED Entered STN: 09 Aug 2002

TI A label-free high-throughput optical technique for detecting biomolecular interactions

IN Cunningham, Brian T.; Pepper, Jane; Lin, Bo; Li, Peter; Pien, Homer

PA Sru Biosystems, LLC, USA

SO PCT Int. Appl., 150 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM G01N033-543

CC 9-1 (Biochemical Methods)

Section cross-reference(s): 14

FAN.CNT 15

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002061429	A2	20020808	WO 2001-US45455	20011023 <--
	WO 2002061429	C1	20030515		
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
	US 2002168295	A1	20021114	US 2001-929957	20010815 <--
	CA 2427689	AA	20020808	CA 2001-2427689	20011023 <--
	EP 1337847	A1	20030827	EP 2001-998024	20011023 <--
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR			
	JP 2004529324	T2	20040924	JP 2002-561944	20011023 <--
	US 2003210396	A1	20031113	US 2001-1069	20011030 <--
	US 6870624	B2	20050322		
	US 2004151626	A1	20040805	US 2004-399940	20040116
PRAI	US 2000-244312P	P	20001030	<--	
	US 2001-283314P	P	20010412		
	US 2001-303028P	P	20010703		
	US 2001-310399P	P	20010806		
	WO 2001-US45455	W	20011023		

CLASS

PATENT NO. CLASS PATENT FAMILY CLASSIFICATION CODES

WO 2002061429 ICM G01N033-543  
 WO 2002061429 ECLA B01L003/00C2D; G01N021/25B2; G01N021/47H;  
 G01N033/543K2; G02B005/18D <--  
 US 2002168295 NCL 422/082.050  
 ECLA G01N033/543K2 <--  
 JP 2004529324 FTERM 2G059/AA05; 2G059/BB12; 2G059/CC16; 2G059/DD12;  
 2G059/EE02; 2G059/EE12; 2G059/FF01; 2G059/GG01;  
 2G059/GG03; 2G059/HH01; 2G059/JJ05; 2G059/JJ11;  
 2G059/JJ15; 2G059/JJ17; 2G059/KK01; 2G059/MM01;  
 2G059/MM02; 2G059/MM03; 2G059/MM04; 2G059/MM05;  
 2G059/MM10 <--  
 US 2003210396 NCL 356/416.000; 356/440.000; 422/082.050  
 ECLA G02B005/18D; G02B005/20M <--  
 US 2004151626 NCL 422/058.000; 422/082.110  
 AB Methods and compns. are provided for detecting biomol. interactions. The  
 use of labels is not required and the methods can be performed in a  
 high-throughput manner. The invention also provides optical devices  
 useful as narrow band filters.  
 ST high throughput optical technique detecting biomol interaction  
 IT Antibodies and Immunoglobulins  
 RL: ANT (Analyte); ANST (Analytical study)  
 (IgG; label-free high-throughput optical technique for detecting  
 biomol. interactions)  
 IT Immunoassay  
 (enzyme-linked immunosorbent assay; label-free high-throughput optical  
 technique for detecting biomol. interactions)  
 IT Prostate gland  
 (fluid; label-free high-throughput optical technique for detecting  
 biomol. interactions)  
 IT Amniotic fluid  
 Animal tissue  
 Ascitic fluid  
 Blood analysis  
 Blood plasma  
 Blood serum  
 Body fluid  
 Borrelia burgdorferi  
 Cell  
 Cerebrospinal fluid  
 Computer program  
 Diffraction gratings  
 Eubacteria  
 Feces  
 High throughput screening  
 Human  
 Immobilization, molecular or cellular  
 Interference  
 Laser radiation  
 Lenses  
 Lymph  
 Mathematical methods  
 Memory devices  
 Microarray technology  
 Molecular association  
 Molecular electronics  
 Nanoparticles  
 Neoplasm  
 Optical diffraction  
 Optical fibers  
 Photolithography

Photoresists  
Physisorption  
Polarization  
Reaction kinetics  
Refractive index  
Saliva  
Semen  
Simulation and Modeling, physicochemical  
Sputum  
Statistical analysis  
Surface structure  
Synovial fluid  
Tear (ocular fluid)  
Virus  
    (label-free high-throughput optical technique for detecting biomol.  
    interactions)  
IT Receptors  
    RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
    (label-free high-throughput optical technique for detecting biomol.  
    interactions)  
IT Antibodies and Immunoglobulins  
    RL: BSU (Biological study, unclassified); BIOL (Biological study)  
    (label-free high-throughput optical technique for detecting biomol.  
    interactions)  
IT Antigens  
    RL: BSU (Biological study, unclassified); BIOL (Biological study)  
    (label-free high-throughput optical technique for detecting biomol.  
    interactions)  
IT Nucleic acids  
    RL: BSU (Biological study, unclassified); BIOL (Biological study)  
    (label-free high-throughput optical technique for detecting biomol.  
    interactions)  
IT Epoxy resins, uses  
    RL: DEV (Device component use); USES (Uses)  
    (label-free high-throughput optical technique for detecting biomol.  
    interactions)  
IT Glass, uses  
    RL: DEV (Device component use); USES (Uses)  
    (label-free high-throughput optical technique for detecting biomol.  
    interactions)  
IT Plastics, uses  
    RL: DEV (Device component use); USES (Uses)  
    (label-free high-throughput optical technique for detecting biomol.  
    interactions)  
IT Proteins  
    RL: PEP (Physical, engineering or chemical process); PYP (Physical  
    process); PROC (Process)  
    (label-free high-throughput optical technique for detecting biomol.  
    interactions)  
IT Lung  
    (lavage fluid; label-free high-throughput optical technique for  
    detecting biomol. interactions)  
IT Optical disks  
    (memory devices; label-free high-throughput optical technique for  
    detecting biomol. interactions)  
IT Flow  
    (micro-; label-free high-throughput optical technique for detecting  
    biomol. interactions)  
IT Biosensors  
    (optical; label-free high-throughput optical technique for detecting

biomol. interactions)

IT Vapor deposition process  
(plasma enhanced chemical (PECVD); label-free high-throughput optical technique for detecting biomol. interactions)

IT Albumins, processes  
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)  
(serum, bovine; label-free high-throughput optical technique for detecting biomol. interactions)

IT Coating process  
(spin; label-free high-throughput optical technique for detecting biomol. interactions)

IT Lung  
(toxicity, lavage fluid; label-free high-throughput optical technique for detecting biomol. interactions)

IT Interferons  
RL: ANT (Analyte); ANST (Analytical study)  
( $\gamma$ ; label-free high-throughput optical technique for detecting biomol. interactions)

IT 9013-20-1, Streptavidin 169592-56-7, Caspase-3  
RL: ANT (Analyte); ANST (Analytical study)  
(label-free high-throughput optical technique for detecting biomol. interactions)

IT 6066-82-6D, N-Hydroxysuccinimide, reaction with peptides 444879-88-3D, reaction products with N-hydroxy succinimide  
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)  
(label-free high-throughput optical technique for detecting biomol. interactions)

IT 71-00-1, L-Histidine, analysis 36875-25-9, Dimethylpimelimidate 74124-79-1, N, N'-Disuccinimidyl carbonate 112241-19-7, SMPT  
RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
(label-free high-throughput optical technique for detecting biomol. interactions)

IT 919-30-2, 3-Aminopropyltriethoxysilane 109940-19-4, Sulfo-succinimidyl-6-(biotinamido) hexanoate  
RL: ARU (Analytical role, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); ANST (Analytical study); PROC (Process)  
(label-free high-throughput optical technique for detecting biomol. interactions)

IT 1314-61-0, Tantalum oxide 1314-98-3, Zinc sulfide, uses 7429-90-5, Aluminum, uses 12033-89-5, Silicon nitride, uses 13463-67-7, Titanium dioxide, uses  
RL: DEV (Device component use); USES (Uses)  
(label-free high-throughput optical technique for detecting biomol. interactions)

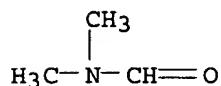
IT 67-56-1, Methanol, uses 67-63-0, Isopropyl alcohol, uses 67-64-1, Acetone, uses 68-12-2, Dimethyl formamide, uses 7732-18-5, Water, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(label-free high-throughput optical technique for detecting biomol. interactions)

IT 169592-56-7, Caspase-3  
RL: ANT (Analyte); ANST (Analytical study)  
(label-free high-throughput optical technique for detecting biomol. interactions)

RN 169592-56-7 HCAPLUS  
CN Apopain (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 68-12-2, Dimethyl formamide, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (label-free high-throughput optical technique for detecting biomol.  
 interactions)  
 RN 68-12-2 HCAPLUS  
 CN Formamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



DMF

L141 ANSWER 7 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2002:595057 HCAPLUS

DN 137:151087

ED Entered STN: 09 Aug 2002

TI Low molecular weight additives increasing the yield, accuracy, and sensitivity of nucleic acid amplification methods

IN Chakrabarti, Raj; Schutt, Clarence E.

PA The Trustees of Princeton University, USA

SO PCT Int. Appl., 64 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C12Q001-68

CC 3-1 (Biochemical Genetics)

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002061137	A2	20020808	WO 2002-US2068	20020125 <--
	WO 2002061137	A3	20030724		
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW			
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
PRAI	US 2001-264935P	P	20010130	<--	
	US 2001-298166P	P	20010614	<--	
	US 2001-298250P	P	20010614	<--	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2002061137	ICM	C12Q001-68

OS MARPAT 137:151087

AB Comps. and methods for enhancing PCR and other polynucleotide replication reactions are disclosed. These comprise the addition of low mol. weight organic amides, sulfones or sulfoxides to PCR or other replication reaction mixts. The additives are particularly useful in dealing with high-(GC) DNA sequences. Expts. screening for effective additives and optimizing concns. and incubation conditions are described. The effects are characterized in terms of potency: the greatest improvement in signal strength regardless of the concentration; and specificity:

jan delaval - 26 may 2005



- the effect on background **amplification**.
- ST amide sulfone sulfoxide nucleic acid **amplification**; PCR  
amide sulfone sulfoxide additive
- IT **Nucleic acid amplification (method)**  
(LCR (ligase chain reaction); low mol. weight additives increasing yield, accuracy, and sensitivity of nucleic acid **amplification** methods)
- IT Amides, uses  
Lactams  
Sulfones  
Sulfoxides  
RL: MOA (Modifier or additive use); USES (Uses)  
(as additives for nucleic acid **amplification** reactions; low mol. weight additives increasing yield, accuracy, and sensitivity of nucleic acid **amplification** methods)
- IT **Nucleic acid amplification (method)**  
(ligase **amplification** reaction; low mol. weight additives increasing yield, accuracy, and sensitivity of nucleic acid **amplification** methods)
- IT **NASBA (nucleic acid sequence-based amplification)**  
**Nucleic acid amplification (method)**  
**PCR (polymerase chain reaction)**  
Test kits  
(low mol. weight additives increasing yield, accuracy, and sensitivity of nucleic acid **amplification** methods)
- IT **Nucleic acid amplification (method)**  
(self-sustained sequence **amplification**; low mol. weight additives increasing yield, accuracy, and sensitivity of nucleic acid **amplification** methods)
- IT Sulfonamides  
RL: MOA (Modifier or additive use); USES (Uses)  
(sultams, as additives for nucleic acid **amplification** reactions; low mol. weight additives increasing yield, accuracy, and sensitivity of nucleic acid **amplification** methods)
- IT **Nucleic acid amplification (method)**  
(transcription-based; low mol. weight additives increasing yield, accuracy, and sensitivity of nucleic acid **amplification** methods)
- IT 60-35-5, Acetamide, uses 67-68-5, DMSO, uses 67-71-0,  
Dimethyl sulfone 68-12-2, N,N-Dimethylformamide, uses 75-12-7, Formamide, uses 77-79-2,  
Sulfolene 79-05-0, Propionamide 79-16-3, N-Methylacetamide 105-60-2, ε-Caprolactam, uses 107-43-7, Betaine 123-39-7, N-Methylformamide 126-33-0,  
Tetramethylene sulfone 127-19-5,  
N,N-Dimethylacetamide 563-83-7, Isobutyramide 597-35-3,  
Ethyl sulfone 598-03-8, Propyl sulfone 616-45-5, 2-Pyrrolidone 675-20-7,  
δ-Valerolactam 872-50-4, N-Methylpyrrolidone, uses 1003-78-7, 2,4-Dimethylsulfolane 1600-44-8,  
Tetramethylene sulfoxide 2168-93-6, Butyl sulfoxide 3445-11-2 4253-91-2, Propyl sulfoxide 4394-85-8, N-Formyl morpholine 70769-71-0, Methyl sec-butyl sulfoxide  
RL: MOA (Modifier or additive use); USES (Uses)  
(as additive for nucleic acid **amplification** reactions; low mol. weight additives increasing yield, accuracy, and sensitivity of nucleic acid **amplification** methods)
- IT 9012-90-2, DNA polymerase 9068-38-6,

## Reverse transcriptase

RL: CAT (Catalyst use); USES (Uses)

(improving activity and specificity of; low mol. weight additives increasing yield, accuracy, and sensitivity of nucleic acid **amplification** methods)IT 445371-21-1 445371-22-2 445371-23-3 445371-24-4 445371-25-5  
445371-26-6 445371-27-7 445371-28-8

RL: PRP (Properties)

(unclaimed nucleotide sequence; low mol. weight additives increasing the yield, accuracy, and sensitivity of nucleic acid **amplification** methods)

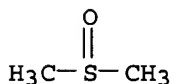
IT 67-68-5, DMSO, uses 67-71-0, Dimethyl sulfone 68-12-2, N,N-Dimethylformamide, uses 77-79-2, Sulfolene 79-16-3, N-Methylacetamide 105-60-2, ε-Caprolactam, uses 123-39-7, N-Methylformamide 126-33-0, Tetramethylene sulfone 127-19-5, N,N-Dimethylacetamide 597-35-3, Ethyl sulfone 598-03-8, Propyl sulfone 616-45-5, 2-Pyrrolidone 675-20-7, δ-Valerolactam 872-50-4, N-Methylpyrrolidone, uses 1003-78-7, 2,4-Dimethylsulfolane 1600-44-8, Tetramethylene sulfoxide 2168-93-6, Butyl sulfoxide 3445-11-2 4253-91-2, Propyl sulfoxide 4394-85-8, N-Formyl morpholine 70769-71-0, Methyl sec-butyl sulfoxide

RL: MOA (Modifier or additive use); USES (Uses)

(as additive for nucleic acid **amplification** reactions; low mol. weight additives increasing yield, accuracy, and sensitivity of nucleic acid **amplification** methods)

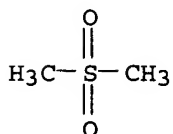
RN 67-68-5 HCAPLUS

CN Methane, sulfinylbis- (9CI) (CA INDEX NAME)



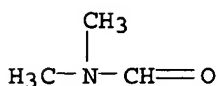
RN 67-71-0 HCAPLUS

CN Methane, sulfonylbis- (9CI) (CA INDEX NAME)



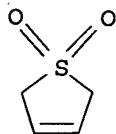
RN 68-12-2 HCAPLUS

CN Formamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



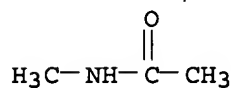
RN 77-79-2 HCAPLUS

CN Thiophene, 2,5-dihydro-, 1,1-dioxide (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



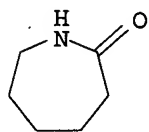
RN 79-16-3 HCAPLUS

CN Acetamide, N-methyl- (8CI, 9CI) (CA INDEX NAME)



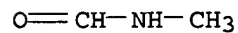
RN 105-60-2 HCAPLUS

CN 2H-Azepin-2-one, hexahydro- (8CI, 9CI) (CA INDEX NAME)



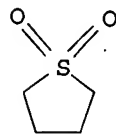
RN 123-39-7 HCAPLUS

CN Formamide, N-methyl- (8CI, 9CI) (CA INDEX NAME)



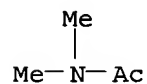
RN 126-33-0 HCAPLUS

CN Thiophene, tetrahydro-, 1,1-dioxide (8CI, 9CI) (CA INDEX NAME)



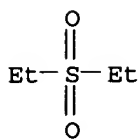
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CN Acetamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)

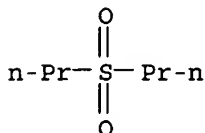


RN 597-35-3 HCAPLUS

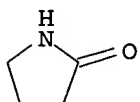
CN Ethane, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



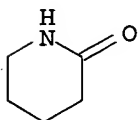
RN 598-03-8 HCAPLUS  
CN Propane, 1,1'-sulfonylbis- (9CI) (CA INDEX NAME)



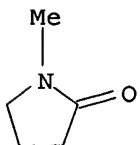
RN 616-45-5 HCAPLUS  
CN 2-Pyrrolidinone (8CI, 9CI) (CA INDEX NAME)



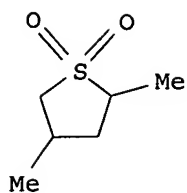
RN 675-20-7 HCAPLUS  
CN 2-Piperidinone (9CI) (CA INDEX NAME)



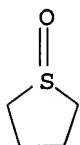
RN 872-50-4 HCAPLUS  
CN 2-Pyrrolidinone, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



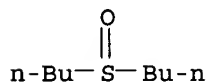
RN 1003-78-7 HCAPLUS  
CN Thiophene, tetrahydro-2,4-dimethyl-, 1,1-dioxide (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



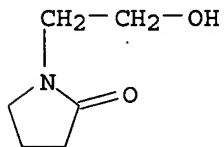
RN 1600-44-8 HCAPLUS  
 CN Thiophene, tetrahydro-, 1-oxide (6CI, 8CI, 9CI) (CA INDEX NAME)



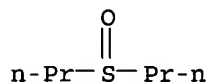
RN 2168-93-6 HCAPLUS  
 CN Butane, 1,1'-sulfinylbis- (9CI) (CA INDEX NAME)



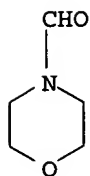
RN 3445-11-2 HCAPLUS  
 CN 2-Pyrrolidinone, 1-(2-hydroxyethyl)- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



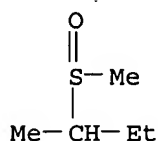
RN 4253-91-2 HCAPLUS  
 CN Propane, 1,1'-sulfinylbis- (9CI) (CA INDEX NAME)



RN 4394-85-8 HCAPLUS  
 CN 4-Morpholinecarboxaldehyde (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 70769-71-0 HCAPLUS  
 CN Butane, 2-(methylsulfinyl)- (9CI) (CA INDEX NAME)



IT 9012-90-2, DNA polymerase 9068-38-6,  
 Reverse transcriptase  
 RL: CAT (Catalyst use); USES (Uses)  
 (improving activity and specificity of; low mol. weight additives  
 increasing yield, accuracy, and sensitivity of nucleic acid  
 amplification methods)

RN 9012-90-2 HCAPLUS  
 CN Nucleotidyltransferase, deoxyribonucleate (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 9068-38-6 HCAPLUS  
 CN Nucleotidyltransferase, deoxyribonucleate, RNA-dependent (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

L141 ANSWER 8 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2002:575355 HCAPLUS

DN 137:121885

ED Entered STN: 02 Aug 2002

TI A label-free high-throughput optical technique for detecting biomolecular interactions

IN Cunningham, Brian T.; Hobbs, Douglas; Pepper, Jane; Lin, Bo; Li, Peter; Pien, Homer

PA SRU Biosystems, LLC, USA

SO PCT Int. Appl., 140 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM G01N033-543

CC 9-1 (Biochemical Methods)

FAN, CNT 15

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002059602	A2	20020801	WO 2001-US50723	20011023 <--
	WO 2002059602	A3	20030130		
	WO 2002059602	C1	20030320		
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LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT,  
 RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ,  
 VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM  
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,  
 DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,  
 BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

US 2002168295	A1	20021114	US 2001-929957	20010815 <--
US 2003210396	A1	20031113	US 2001-1069	20011030 <--
US 6870624	B2	20050322		
US 2004132172	A1	20040708	US 2004-415037	20040120
PRAI US 2000-244312P	P	20001030	<--	
US 2001-283314P	P	20010412		
US 2001-303028P	P	20010703		
US 2001-310399P	P	20010806		
WO 2001-US50723	W	20011023		

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES	
WO 2002059602	ICM	G01N033-543	
WO 2002059602	ECLA	B01L003/00C2D; G01N021/25B2; G01N021/47H; G01N033/543K2; G02B005/18D	<--
US 2002168295	NCL	422/082.050	
	ECLA	G01N033/543K2	<--
US 2003210396	NCL	356/416.000; 356/440.000; 422/082.050	
	ECLA	G02B005/18D; G02B005/20M	<--
US 2004132172	NCL	435/287.200; 435/288.700	
	ECLA	B01L003/00C2D; G01N021/25B2; G01N021/47H; G01N033/543K2; G02B005/18D	

AB Methods and compns. are provided for detecting biomol. interactions. The use of labels is not required and the methods can be performed in a high-throughput manner. The invention also provides optical devices useful as narrow band filters.

ST high throughput optical technique detecting biomol interaction

IT Antibodies and Immunoglobulins

RL: ANT (Analyte); ANST (Analytical study)

(IgG; label-free high-throughput optical technique for detecting biomol. interactions)

IT Immunoassay

(enzyme-linked immunosorbent assay; label-free high-throughput optical technique for detecting biomol. interactions)

IT Borrelia burgdorferi

Computer program

Diffraction gratings

Eubacteria

High throughput screening

Immobilization, molecular or cellular

Interference

Lenses

Mathematical methods

Memory devices

Molecular electronics

Optical diffraction

Optical fibers

Photolithography

Photoresists

Polarization

Reaction kinetics

Refractive index

Simulation and Modeling, physicochemical

Surface structure

(label-free high-throughput optical technique for detecting biomol. interactions)

IT Receptors  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (label-free high-throughput optical technique for detecting biomol. interactions)

IT Epoxy resins, uses  
 RL: DEV (Device component use); USES (Uses)  
 (label-free high-throughput optical technique for detecting biomol. interactions)

IT Glass, uses  
 RL: DEV (Device component use); USES (Uses)  
 (label-free high-throughput optical technique for detecting biomol. interactions)

IT Plastics, uses  
 RL: DEV (Device component use); USES (Uses)  
 (label-free high-throughput optical technique for detecting biomol. interactions)

IT Proteins  
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)  
 (label-free high-throughput optical technique for detecting biomol. interactions)

IT Optical disks  
 (memory devices; label-free high-throughput optical technique for detecting biomol. interactions)

IT Biosensors  
 (optical; label-free high-throughput optical technique for detecting biomol. interactions)

IT Vapor deposition process  
 (plasma; label-free high-throughput optical technique for detecting biomol. interactions)

IT Albumins, processes  
 RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)  
 (serum, bovine; label-free high-throughput optical technique for detecting biomol. interactions)

IT Coating process  
 (spin; label-free high-throughput optical technique for detecting biomol. interactions)

IT Interferons  
 RL: ANT (Analyte); ANST (Analytical study)  
 ( $\gamma$ ; label-free high-throughput optical technique for detecting biomol. interactions)

IT 9013-20-1, Streptavidin 169592-56-7, Caspase-3  
 RL: ANT (Analyte); ANST (Analytical study)  
 (label-free high-throughput optical technique for detecting biomol. interactions)

IT 74124-79-1, N, N'-Disuccinimidyl carbonate 443965-77-3 443965-78-4  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (label-free high-throughput optical technique for detecting biomol. interactions)

IT 919-30-2, 3-Aminopropyltriethoxysilane 109940-19-4, Sulfo-succinimidyl-6-(biotinamido) hexanoate  
 RL: ARU (Analytical role, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); ANST (Analytical study); PROC (Process)  
 (label-free high-throughput optical technique for detecting biomol. interactions)

IT 1314-61-0, Tantalum oxide 1314-98-3, Zinc sulfide, uses 7429-90-5,



Aluminum, uses 12033-89-5, Silicon nitride, uses 13463-67-7, Titanium dioxide, uses  
 RL: DEV (Device component use); USES (Uses)  
 (label-free high-throughput optical technique for detecting biomol. interactions)

IT 67-56-1, Methanol, uses 67-63-0, Isopropyl alcohol, uses 67-64-1, Acetone, uses 68-12-2, Dimethyl formamide, uses 7732-18-5, Water, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (label-free high-throughput optical technique for detecting biomol. interactions)

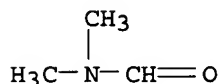
IT 169592-56-7, Caspase-3  
 RL: ANT (Analyte); ANST (Analytical study)  
 (label-free high-throughput optical technique for detecting biomol. interactions)

RN 169592-56-7 HCAPLUS  
 CN Apopain (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 68-12-2, Dimethyl formamide, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (label-free high-throughput optical technique for detecting biomol. interactions)

RN 68-12-2 HCAPLUS  
 CN Formamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



L141 ANSWER 9 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 2002:555629 HCAPLUS  
 DN 137:125359  
 ED Entered STN: 26 Jul 2002  
 TI Preparation of nucleoside derivatives as inhibitors of RNA-dependent RNA viral polymerase  
 IN Carroll, Steven S.; Lafemina, Robert L.; Hall, Dawn L.; Himmelberger, Amy L.; Kuo, Lawrence C.; Maccoss, Malcolm; Olsen, David B.; Rutkowski, Carrie A.; Tomassini, Joanne E.; An, Haoyun; Bhat, Balkrishen; Bhat, Neelima; Cook, Phillip Dan; Eldrup, Anne B.; Guinosso, Charles J.; Prhavc, Marija; Prakash, Thazha P.  
 PA Merck & Co., Inc., USA; Isis Pharmaceuticals, Inc.  
 SO PCT Int. Appl., 235 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 IC ICM C12N  
 CC 33-9 (Carbohydrates)  
 Section cross-reference(s): 1, 7, 63

FAN.CNT 2

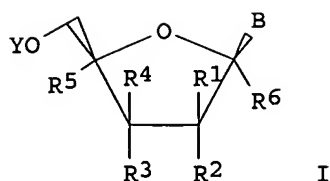
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002057425	A2	20020725	WO 2002-US1531	20020118 <--
	WO 2002057425	A3	20050421		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS,				

LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL,  
 PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA,  
 UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM  
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH,  
 CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR,  
 BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

CA 2433878	AA	20020725	CA 2002-2433878	20020118	<--
US 2002147160	A1	20021010	US 2002-52318	20020118	<--
US 6777395	B2	20040817			
JP 2004532184	T2	20041021	JP 2002-558479	20020118	<--
US 2004072788	A1	20040415	US 2003-431657	20030507	<--
ZA 2003005078	A	20040521	ZA 2003-5078	20030630	<--
US 2004067901	A1	20040408	US 2003-688691	20031017	<--
US 2004110717	A1	20040610	US 2004-250873	20040116	<--
PRAI US 2001-263313P	P	20010122	<--		
US 2001-282069P	P	20010406			
US 2001-299320P	P	20010619			
US 2001-344528P	P	20011025			
US 2002-52318	A3	20020118			
WO 2002-US1531	W	20020118			

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES	
WO 2002057425	ICM	C12N	
WO 2002057425	ECLA	C07H019/14	<--
US 2002147160	NCL	514/043.000; 536/026.230; 536/026.260; 536/026.700; 536/027.130; 536/027.200	
	ECLA	C07H019/14; C07H019/16E	<--
JP 2004532184	FTERM	4C050/AA01; 4C050/BB04; 4C050/CC08; 4C050/EE03; 4C050/FF10; 4C050/GG03; 4C050/GG04; 4C050/HH02; 4C057/BB02; 4C057/BB05; 4C057/CC02; 4C057/CC03; 4C057/DD01; 4C057/DD03; 4C057/LL17; 4C057/LL18; 4C057/LL19; 4C057/LL20; 4C057/LL21; 4C057/LL26; 4C057/LL28; 4C057/LL29; 4C057/LL35; 4C057/LL36; 4C057/LL39; 4C057/LL40; 4C057/LL41; 4C057/LL42; 4C057/LL43; 4C057/LL44; 4C057/LL45; 4C057/LL46; 4C057/LL50; 4C084/AA19; 4C084/NA14; 4C084/ZB331; 4C084/ZC201; 4C084/ZC202; 4C084/ZC751; 4C086/AA01; 4C086/AA02; 4C086/AA03; 4C086/CB05; 4C086/EA16; 4C086/EA17; 4C086/EA18; 4C086/MA01; 4C086/MA02; 4C086/MA04; 4C086/NA14; 4C086/ZB33; 4C086/ZC20; 4C086/ZC75	<--
US 2004072788	NCL	514/046.000; 514/050.000	<--
	ECLA	C07H019/14; C07H019/16E	<--
US 2004067901	NCL	514/043.000; 536/027.200; 514/265.100; 544/281.000	<--
	ECLA	C07H019/14; C07H019/16E	<--
US 2004110717	NCL	514/045.000; 514/050.000; 514/249.000; 514/262.100; 514/269.000; 514/340.000	<--
OS	MARPAT 137:125359		
GI			



- AB The present invention provides the preparation of nucleoside compds. I, wherein B is nucleobase, Y is H, alkylcarbonyl, phosphate; R1 is H, alkenyl, alkynyl, alkyl; R2 and R3 are independently H, OH, halogen, alkyl, alkoxy, alkenyloxy, alkylthio, alkylcarbonyloxy, aryloxycarbonyl, azido, amino, alkylamino; R1 and R2 together with the carbon atom to which they are attached form a 3- to 6-membered heterocycle; R4 is H, OH, SH, NH2, alkylamino, cycloalkylamino, halogen, alkyl, alkoxy, CF3; R5 and R6 are independently H, hydroxymethyl, Me, fluoromethyl; and certain derivs. thereof which are inhibitors of RNA-dependent RNA viral **polymerase**. These compds. are inhibitors of RNA-dependent RNA viral replication and are useful for the treatment of RNA-dependent RNA viral infection. They are particularly useful as inhibitors of hepatitis C virus (HCV) NS5B **polymerase**, as inhibitors of HCV replication, and/or for the treatment of hepatitis C infection. The invention also describes pharmaceutical compds. containing such nucleoside compds. alone or in combination with other agents active against RNA-dependent RNA viral infection, in particular HCV infection. Also disclosed are methods of inhibiting RNA-dependent RNA **polymerase**, inhibiting RNA-dependent RNA viral replication, and/or treating RNA-dependent RNA viral infection with the nucleoside compds. of the present invention. Thus, 4-amino-1-(2-C-methyl- $\beta$ -D-ribofuranosyl)-1H-pyrazolo[3,4-d]pyrimidine was prepared as inhibitors of RNA-dependent RNA viral **polymerase**. Representative compds. tested in the HCV NS5B **polymerase** assay exhibited IC's less than 100  $\mu$ M. The compds. of the present invention were also evaluated for their ability to affect the replication of Hepatitis C Virus RNA in cultured hepatoma (HuH-7) cells containing a sub-genomic HCV Replicon.
- ST human cytotoxicity nucleoside prepn antiviral hepatitis C; cytotoxicity nucleoside prepn antiviral hepatitis C; nucleoside prepn inhibitor human RNA **polymerase** antiviral hepatitis C
- IT Antiviral agents  
Cytotoxicity  
Fever and Hyperthermia  
Hepatitis C virus  
Human  
Infection  
(preparation of nucleoside derivs. as inhibitors of RNA-dependent human RNA viral **polymerase**)
- IT RNA formation  
(replication; preparation of nucleoside derivs. as inhibitors of RNA-dependent human RNA viral **polymerase**)
- IT Infection  
(viral; preparation of nucleoside derivs. as inhibitors of RNA-dependent human RNA viral **polymerase**)
- IT 9026-28-2, RNA-dependent RNA **Polymerase**  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(Hepatitis C Virus NS5B; preparation of nucleoside derivs. as inhibitors of RNA-dependent human RNA viral **polymerase**)
- IT 9026-93-1, Adenosine deaminase

RL: CAT (Catalyst use); USES (Uses)

(preparation of nucleoside derivs. as inhibitors of RNA-dependent human RNA viral polymerase)

IT 2140-72-9P, 2'-O-Methylcytidine 120401-36-7P

RL: IMF (Industrial manufacture); PAC (Pharmacological activity); RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(preparation of nucleoside derivs. as inhibitors of RNA-dependent human RNA viral polymerase)

IT 86-01-1P 147-94-4P 606-58-6P 961-07-9P 2004-07-1P 2140-71-8P  
 2140-79-6P 2504-55-4P 2564-35-4P 2946-39-6P 3258-05-7P  
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 444020-88-6P 444020-89-7P

RL: IMF (Industrial manufacture); PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(preparation of nucleoside derivs. as inhibitors of RNA-dependent human RNA viral polymerase)

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RL: IMF (Industrial manufacture); PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(preparation of nucleoside derivs. as inhibitors of RNA-dependent human RNA viral polymerase)

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RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation of nucleoside derivs. as inhibitors of RNA-dependent human RNA viral polymerase)

IT 160526-82-9P

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)

(preparation of nucleoside derivs. as inhibitors of RNA-dependent human RNA viral polymerase)

IT 94-99-5 872-50-4, 1-Methyl-2-pyrrolidinone, uses

RL: NUU (Other use, unclassified); USES (Uses)

(preparation of nucleoside derivs. as inhibitors of RNA-dependent human RNA viral polymerase)

IT 60-24-2, 2-Mercaptoethanol 69-33-0, Tubercidin 124-07-2, Octanoic acid, reactions 524-38-9, N-Hydroxyphthalimide 937-14-4, 3-Chloroperbenzoic acid 1618-36-6 2096-10-8, 2-Aminoadenosine 2380-63-4, 1H-Pyrazolo[3,4-d]pyrimidin-4-amine 3680-69-1 7057-33-2, 3'-Deoxycytidine 15397-12-3 18422-43-0 19393-83-0 40635-67-4,  $\alpha$ -Acetoxyisobutyryl bromide 56039-06-6 68703-51-5 70384-51-9 79159-76-5 84955-31-7 85335-76-8 90358-16-0 102690-94-8 102731-45-3 127047-59-0 129786-41-0 153121-88-1 168427-36-9 171763-19-2 177414-97-0 213623-59-7 318246-79-6 443642-59-9 443642-76-0 444018-75-1 444018-91-1 444018-94-4 444018-97-7 444019-00-5 444019-07-2 444019-11-8 444019-14-1 444019-16-3 444019-18-5 444019-20-9 444019-22-1 444019-24-3

RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of nucleoside derivs. as inhibitors of RNA-dependent human RNA viral polymerase)

IT 9012-90-2, DNA polymerase

RL: BSU (Biological study, unclassified); BIOL (Biological study) ( $\alpha$ ,  $\beta$ , and  $\gamma$  human; preparation of nucleoside derivs. as inhibitors of RNA-dependent human RNA viral polymerase)

IT 9026-28-2, RNA-dependent RNA Polymerase

RL: BSU (Biological study, unclassified); BIOL (Biological study) (Hepatitis C Virus NS5B; preparation of nucleoside derivs. as inhibitors of RNA-dependent human RNA viral polymerase)

RN 9026-28-2 HCAPLUS

CN Nucleotidyltransferase, ribonucleate, RNA-dependent (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

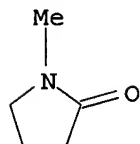
IT 872-50-4, 1-Methyl-2-pyrrolidinone, uses

RL: NUU (Other use, unclassified); USES (Uses)

(preparation of nucleoside derivs. as inhibitors of RNA-dependent human RNA viral polymerase)

RN 872-50-4 HCAPLUS

CN 2-Pyrrolidinone, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



IT 9012-90-2, DNA polymerase

RL: BSU (Biological study, unclassified); BIOL (Biological study) ( $\alpha$ ,  $\beta$ , and  $\gamma$  human; preparation of nucleoside derivs. as inhibitors of RNA-dependent human RNA viral polymerase)

RN 9012-90-2 HCAPLUS

CN Nucleotidyltransferase, deoxyribonucleate (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

L141 ANSWER 10 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2002:533078 HCAPLUS

DN 137:90188

ED Entered STN: 17 Jul 2002

TI Reversible inactivation of thermostable DNA polymerase or ligase by lysine modification with dicarboxylic acid anhydride in an aprotic organic solvent

IN Louwrier, Ariel  
 PA Advanced Biotechnologies Ltd., UK  
 SO Jpn. Kokai Tokkyo Koho, 7 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM C12N009-12  
 ICS C12N009-99; C12N015-09; C12Q001-48  
 CC 7-3 (Enzymes)

Section cross-reference(s): 3

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002199877	A2	20020716	JP 2000-364771	20001130
PRAI	JP 2000-364771		20001130		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2002199877	ICM	C12N009-12
	ICS	C12N009-99; C12N015-09; C12Q001-48

AB A method for reversibly inactivating thermostable **DNA polymerase** or ligase with dicarboxylic acid anhydride is disclosed. The method comprises reacting a mixture of the thermostable **DNA polymerase** or ligase with a dicarboxylic acid anhydride, wherein the reaction is carried out using a dried **DNA polymerase** or ligase in an anhydrous aprotic organic solvent, the dicarboxylic acid anhydride being also substantially anhydrous. Inactivation of *Thermus aquaticus* (Taq) **DNA polymerase** by modification of lysine residues with citraconic acid anhydride in anhydrous t-methylbutyl ether (t-MBE), Et acetate, methylethyl ketone, or tetrachloromethane (carbon tetrachloride), is described.

ST **DNA polymerase** ligase inactivation dicarboxylic acid anhydride lysine modification; aprotic org solvent **DNA polymerase** ligase inactivation lysine modification

IT Carboxylic acids, reactions

RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)  
 (dicarboxylic, anhydride; reversible inactivation of thermostable **DNA polymerase** or ligase by lysine modification with dicarboxylic acid anhydride in aprotic organic solvent)

IT Solvents

(organic, aprotic; reversible inactivation of thermostable **DNA polymerase** or ligase by lysine modification with dicarboxylic acid anhydride in aprotic organic solvent)

IT 56-23-5, Tetrachloromethane, miscellaneous 78-93-3, Methylethyl ketone, miscellaneous 108-94-1, Cyclohexanone, miscellaneous 110-86-1, Pyridine, miscellaneous 111-43-3, Propyl ether 126-33-0, Sulpholane 141-78-6, Ethyl acetate, miscellaneous 142-96-1, Butyl ether 1634-04-4, tert-Methylbutyl ether 63072-44-6, Methyl pentanone

RL: MSC (Miscellaneous)

(aprotic organic solvent; reversible inactivation of thermostable **DNA polymerase** or ligase by lysine modification with dicarboxylic acid anhydride in aprotic organic solvent)

IT 9012-90-2, **DNA polymerase** 9015-85-4, **DNA** ligase 441742-31-0 441742-32-1

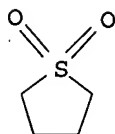
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
 (reversible inactivation of thermostable **DNA polymerase** or ligase by lysine modification with dicarboxylic acid anhydride in aprotic organic solvent)

IT 616-02-4, Citraconic acid anhydride  
 RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)  
 (reversible inactivation of thermostable **DNA polymerase** or ligase by lysine modification with dicarboxylic acid anhydride in aprotic organic solvent)

IT 56-87-1, L-Lysine, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reversible inactivation of thermostable **DNA polymerase** or ligase by lysine modification with dicarboxylic acid anhydride in aprotic organic solvent)

IT 126-33-0, Sulpholane  
 RL: MSC (Miscellaneous)  
 (aprotic organic solvent; reversible inactivation of thermostable **DNA polymerase** or ligase by lysine modification with dicarboxylic acid anhydride in aprotic organic solvent)

RN 126-33-0 HCAPLUS  
 CN Thiophene, tetrahydro-, 1,1-dioxide (8CI, 9CI) (CA INDEX NAME)



IT 9012-90-2, DNA polymerase  
 RL: BSU (Biological study, unclassified); BIOL (Biological study)  
 (reversible inactivation of thermostable **DNA polymerase** or ligase by lysine modification with dicarboxylic acid anhydride in aprotic organic solvent)

RN 9012-90-2 HCAPLUS  
 CN Nucleotidyltransferase, deoxyribonucleate (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

L141 ANSWER 11 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2002:295299 HCAPLUS

DN 137:150765

ED Entered STN: 21 Apr 2002

TI Novel sulfoxides facilitate GC-rich template **amplification**

AU Chakrabarti, Raj; Schutt, Clarence E.

CS Princeton University, Princeton, NJ, USA

SO BioTechniques (2002), 32(4), 866,868,870-872,874

CODEN: BTNQDO; ISSN: 0736-6205

PB Eaton Publishing Co.

DT Journal

LA English

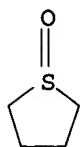
CC 3-1 (Biochemical Genetics)

AB Certain organic solvents, such as DMSO and betaine, have been reported to enhance **PCR amplification**, particularly for hard-to-**amplify** high-GC templates. As a result of extensive structure-activity studies between two groups of compds.-amides and sulfones-we have recently discovered several other potent **PCR** enhancers. Here we describe the effects of a series of different sulfoxides on GC-rich template **amplification** and report several of these to be exceptionally effective, often outperforming DMSO. We introduce them as novel **PCR** enhancers. We identify **tetramethylene sulfoxide** as the most potent

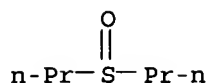


sulfur-oxygen compound in the enhancement of PCR amplification and as one of the most potent PCR enhancers currently known.

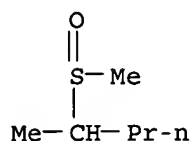
ST sulfoxide PCR enhancer GC enriched DNA template  
 IT DNA  
 RL: ANT (Analyte); ANST (Analytical study)  
 (GC-rich PCR template; novel sulfoxides facilitate GC-rich template amplification)  
 IT PCR (polymerase chain reaction)  
 (enhancers for; novel sulfoxides facilitate GC-rich template amplification)  
 IT 951-77-9, Deoxy cytidine 961-07-9, Deoxy guanosine  
 RL: BSU (Biological study, unclassified); BIOL (Biological study)  
 (novel sulfoxides facilitate GC-rich template amplification)  
 IT 1600-44-8, Tetramethylene sulfoxide  
 4253-91-2, Propyl sulfoxide  
 445229-62-9  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (novel sulfoxides facilitate GC-rich template amplification)  
 RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 RE  
 (1) Bachman, B; Nucleic Acids Res 1990, V18, P1309  
 (2) Baskaran, N; Genome Methods 1996, V6, P633 HCAPLUS  
 (3) Chakrabarti, R; Gene 2001, V274, P293 HCAPLUS  
 (4) Chakrabarti, R; Nucleic Acids Res 2001, V29, P2377 HCAPLUS  
 (5) Cheng, S; Proc Natl Acad Sci USA 1994, V91, P5695 HCAPLUS  
 (6) Ivinson, A; PCR: A Practical Approach 1991, P19  
 (7) Lee, C; Proc Natl Acad Sci USA 1981, V78, P2838 HCAPLUS  
 (8) McDowell, D; Nucleic Acids Res 1998, V26, P3340 HCAPLUS  
 (9) Newton, C; PCR 1997, P29  
 (10) Pomp, D; BioTechniques 1991, V10, P58 HCAPLUS  
 (11) Press, W; Numerical Recipes in C 1988, P94  
 (12) Roux, K; PCR Primer--A Laboratory Manual 1995, P55  
 (13) Saiki, R; Science 1988, V239, P487 HCAPLUS  
 (14) Smith, T; Amplifications 1990, V5, P16  
 (15) Varadaraj, K; Gene 1994, V140, P1 HCAPLUS  
 (16) Weissensteiner, T; BioTechniques 1996, V21, P1102 HCAPLUS  
 (17) Winship, P; Nucleic Acids Res 1989, V17, P1266 HCAPLUS  
 IT 1600-44-8, Tetramethylene sulfoxide  
 4253-91-2, Propyl sulfoxide  
 445229-62-9  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (novel sulfoxides facilitate GC-rich template amplification)  
 RN 1600-44-8 HCAPLUS  
 CN Thiophene, tetrahydro-, 1-oxide (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 4253-91-2 HCAPLUS  
 CN Propane, 1,1'-sulfinylbis- (9CI) (CA INDEX NAME)



RN 445229-62-9 HCAPLUS  
 CN Pentane, 2-(methylsulfinyl)- (9CI) (CA INDEX NAME)



L141 ANSWER 12 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 2002:143226 HCAPLUS  
 DN 136:196563  
 ED Entered STN: 22 Feb 2002  
 TI Method for isolating single-stranded DNA from double-stranded  
 amplification products  
 IN Hornby, David P.; Dickman, Mark  
 PA UK  
 SO U.S. Pat. Appl. Publ., 18 pp.  
 CODEN: USXXCO  
 DT Patent  
 LA English  
 IC ICM C12Q001-68  
 ICS C12P019-34  
 INCL 435006000  
 CC 9-3 (Biochemical Methods)  
 Section cross-reference(s): 3  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002022224	A1	20020221	US 2001-770846	20010126 <--
PRAI	US 2000-200824P	P	20000428	<--	
	US 2000-221340P	P	20000726	<--	

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 20020022224	ICM	C12Q001-68
	ICS	C12P019-34
	INCL	435006000
US 2002022224	NCL	435/006.000; 435/091.100
	ECLA	C12N015/10A2B; C12Q001/68A4+523/113 <--

AB A method for generating single-stranded DNA (ssDNA) directly from double-stranded PCR (dsPCR) products is described. The method generally entails: (1) amplifying a target polynucleotide by means of two oligonucleotide primers, wherein one primer is capable of hybridizing to the target polynucleotide and the other primer is capable of hybridizing to the complement of the target polynucleotide, and wherein one of the primers comprises a chemical tag, thereby producing an amplification product mixture comprising a tagged amplification product of the target polynucleotide and a complementary non-tagged amplification product; (2) applying the amplification product mixture to a separation medium, wherein the chemical tag is capable of interacting with the separation medium; and (3) eluting

the amplification products from the separation medium by means of a mobile phase under denaturing conditions, wherein the interaction between the tag and the separation medium results in the phys. separation of the two amplification products. Separation is preferably achieved under denaturing conditions using denaturing reversed-phase ion-pairing HPLC (RP-IP-DHPLC) on a DNASep chromatog. cartridge with dsDNA formed using asym. biotinylated primers. The stationary phase of the cartridge comprises a nonporous, C<sub>18</sub> alkylated poly(styrene-divinylbenzene) separation medium, and a buffer gradient containing 25% acetonitrile. The biotinylated oligonucleotide is eluted .apprx.2 min later than the non-biotinylated oligo.

ST single stranded DNA sepn amplification product; PCR product  
single stranded DNA sepn

IT Fluorescent indicators  
(asym. labeled; method for isolating single-stranded DNA from double-stranded amplification products)

IT Primers (nucleic acid)  
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)  
(asym. labeled; method for isolating single-stranded DNA from double-stranded amplification products)

IT Spheres  
(beads; method for isolating single-stranded DNA from double-stranded amplification products)

IT Quaternary ammonium compounds, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(counterion agents; method for isolating single-stranded DNA from double-stranded amplification products)

IT DNA  
RL: PUR (Purification or recovery); PREP (Preparation)  
(double-stranded; method for isolating single-stranded DNA from double-stranded amplification products)

IT Counterions  
Nucleic acid amplification (method)  
PCR (polymerase chain reaction)  
(method for isolating single-stranded DNA from double-stranded amplification products)

IT Esters, uses  
Ethers, uses  
Nitriles, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(organic solvent; method for isolating single-stranded DNA from double-stranded amplification products)

IT Solvents  
(organic; method for isolating single-stranded DNA from double-stranded amplification products)

IT Silica gel, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(polymeric monolith; method for isolating single-stranded DNA from double-stranded amplification products)

IT Amines, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(primary, counterion agents; method for isolating single-stranded DNA from double-stranded amplification products)

IT Amines, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(secondary, counterion agents; method for isolating single-stranded DNA from double-stranded amplification products)

IT Diatomite  
Polysaccharides, uses

RL: TEM (Technical or engineered material use); USES (Uses)  
 (separation medium; method for isolating single-stranded DNA from double-stranded amplification products)

IT DNA  
 RL: PUR (Purification or recovery); PREP (Preparation)  
 (single-stranded; method for isolating single-stranded DNA from double-stranded amplification products)

IT Amines, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (tertiary, counterion agents; method for isolating single-stranded DNA from double-stranded amplification products)

IT 1185-59-7, Tetraethylammonium acetate 2016-38-8, Decylammonium acetate 2016-40-2; Octylammonium acetate 2190-04-7, Octadecylammonium acetate 5153-63-9 5204-74-0, Triethylammonium acetate 7204-64-0, Tributylammonium acetate 7346-79-4 10534-59-5, Tetraethylammonium acetate 10581-12-1, Tetramethylammonium acetate 20726-63-0, Diethylammonium acetate 56285-72-4 67846-20-2, Tripropylammonium acetate 69576-93-8, Tetrapropylammonium acetate 71788-19-7 173474-19-6 205490-75-1 224047-27-2 224047-28-3 224047-29-4  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (counterion agents; method for isolating single-stranded DNA from double-stranded amplification products)

IT 58-85-5D, Biotin, DNA asymmetrically labeled 3301-79-9D, 6-FAM, DNA asymmetrically labeled  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (method for isolating single-stranded DNA from double-stranded amplification products)

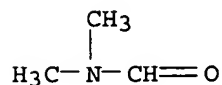
IT 64-17-5, Ethanol, uses 68-12-2, DMF, uses 75-05-8, Acetonitrile, uses 109-99-9, THF, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (organic solvent; method for isolating single-stranded DNA from double-stranded amplification products)

IT 409-21-2, Silicon carbide, uses 1314-23-4, Zirconium oxide, uses 1344-28-1, Aluminum oxide, uses 7440-44-0, Carbon, uses 7631-86-9, Silica, uses 13463-67-7, Titanium oxide, uses 23377-49-3  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (separation medium; method for isolating single-stranded DNA from double-stranded amplification products)

IT 400702-69-4 400702-70-7 400702-71-8 400702-72-9 400702-73-0 400702-74-1 400702-75-2  
 RL: PRP (Properties)  
 (unclaimed sequence; method for isolating single-stranded DNA from double-stranded amplification products)

IT 68-12-2, DMF, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (organic solvent; method for isolating single-stranded DNA from double-stranded amplification products)

RN 68-12-2 HCAPLUS  
 CN Formamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



L141 ANSWER 13 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 2001:798415 HCAPLUS  
 DN 135:341168

ED Entered STN: 02 Nov 2001  
 TI Chromatographic method and apparatus for separating and purifying  
 polynucleotides on polymeric separation medium  
 IN Gjerde, Douglas T.; Hanna, Christopher P.; Hornby, David; Dickman, Mark;  
 Legendre, Benjamin J., Jr.; Taylor, Paul; Haefele, Robert; Azarani, Arezou  
 PA Transgenomic, Inc., USA  
 SO PCT Int. Appl., 102 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 IC ICM C12N015-10  
 CC 9-3 (Biochemical Methods)  
 Section cross-reference(s): 3

FAN.CNT 34

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001081566	A2	20011101	WO 2001-US12913	20010420 <--
	WO 2001081566	A3	20020510		
	W:				
	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,				
	CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR,				
	HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,				
	LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU,				
	SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU,				
	ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,				
	DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,				
	BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	US 6475388	B1	20021105	US 2000-557424	20000421 <--
	US 6355165	B1	20020312	US 2000-580302	20000526 <--
	US 2001023290	A1	20010920	US 2001-764041	20010116 <--
	US 6642374	B2	20031104		
	EP 1274837	A2	20030115	EP 2001-932598	20010420 <--
	R:				
	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,				
	IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
PRAI	US 2000-557424	A	20000421		<--
	US 2001-764041	A	20010116		<--
	US 1996-748376	A2	19961113		<--
	US 1997-44856P	P	19970425		<--
	US 1998-58580	B1	19980410		<--
	US 1998-65913	A1	19980424		<--
	US 1998-99825P	P	19980910		<--
	US 1998-183123	A2	19981030		<--
	US 1999-119936P	P	19990212		<--
	US 1999-295474	A3	19990419		<--
	US 1999-391963	A1	19990908		<--
	US 2000-187979P	P	20000309		<--
	WO 2001-US12913	W	20010420		
	US 2002-187974P	P	20020309		

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2001081566	ICM	C12N015-10
WO 2001081566	ECLA	C12N015/10A2B
US 6475388	NCL	210/635.000; 210/198.200; 210/656.000; 435/006.000; 536/025.400
US 6355165	NCL	210/198.200; 210/175.000; 210/656.000
	ECLA	B01D015/16B; B01D015/20; B01D015/36P; G01N030/30; G01N030/54; G01N030/96
US 2001023290	NCL	536/025.410; 536/025.400
	ECLA	B01D015/08; B01J020/26; B01J020/32; C12N015/10A2B;

C12Q001/68A4

&lt;--

AB The instant invention provides a non-HPLC chromatog. method for purifying a target polynucleotide comprising the steps of: applying the target polynucleotide to a separation medium having a non-polar separation surface in the presence of a counterion agent, whereby the polynucleotide is bound to the separation medium; eluting the target polynucleotide from the separation medium by passing through the separation medium an elution solution containing a concentration of organic solvent sufficient to elute the target polynucleotide from the separation medium; and collecting the eluted target polynucleotide. The term "non-HPLC chromatog. method" is intended to encompass any chromatog. method which does not involve the use of a pump to generate high pressure to force eluant through a chromatog. column. In general, non-HPLC chromatog. methods are more economical than HPLC, which represents a significant advantage of the instant invention. Non-polar polymeric separation media, such as beads or monoliths, are suitable for chromatog. separation of mixts. of polynucleotides when the surfaces of the media are unsubstituted or substituted with a hydrocarbon group and when the surfaces are substantially free from multivalent cations capable of interfering with polynucleotide sepns. The separation medium can be supported in any of a variety of containers, non-limiting preferred examples of which include spin columns and vacuum trays. Methods for maintaining and storing the polymeric media include treatment with multivalent cation binding agents. The invention is particularly useful for the separation of RNA and single and double stranded DNA. Ion pairing reverse phase HPLC (IP-RP-HPLC) is a technique for the separation and anal. of polynucleotides that has been shown to achieve high resolution sepns. in a reproducible manner. A superior form of IP-RP-HPLC, termed Matched Ion Polynucleotide Chromatog. (MIPC), is described.

ST chromatog method app polynucleotide polymeric sepn medium

IT Chromatography  
(Matched Ion Polynucleotide Chromatog. (MIPC); chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

IT Washing  
(acid, to remove surface metal contaminants; chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

IT Spheres  
(beads, or monoliths, separation medium comprises; chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

IT Centrifuges  
Chromatographs  
Counterions  
(chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

IT Oligonucleotides  
Polynucleotides  
RNA  
RL: ANT (Analyte); PEP (Physical, engineering or chemical process); PUR (Purification or recovery); ANST (Analytical study); PREP (Preparation); PROC (Process)  
(chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

IT DNA  
RL: ANT (Analyte); PEP (Physical, engineering or chemical process); PUR

(Purification or recovery); ANST (Analytical study); PREP (Preparation); PROC (Process)  
(double-stranded; chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

IT Polysaccharides, uses  
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(insol., separation medium comprises particles of; chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

IT Cations  
(multivalent, separation medium and solns. free from; chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

IT Hydrocarbons, uses  
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(non-polar hydrocarbon substituted, separation medium surfaces; chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

IT Mixtures  
(organic solvent; chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

IT Alcohols, uses  
Esters, uses  
Ethers, uses  
Nitriles, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(organic solvent; chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

IT Solvents  
(organic, polynucleotide elution from separation medium using; chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

IT Amines, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(primary, lower alkyl, counterion agent; chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

IT Amines, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(secondary, lower alkyl, counterion agent; chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

IT Diatomite  
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(separation medium comprises particles of; chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

IT Capillary tubes  
(separation medium comprises; chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

IT Polymers, uses  
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(separation medium surfaces; chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

IT **PCR (polymerase chain reaction)**  
 (separation of PCR products; chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

IT **DNA**  
 RL: ANT (Analyte); PEP (Physical, engineering or chemical process); PUR (Purification or recovery); ANST (Analytical study); PREP (Preparation); PROC (Process)  
 (single-stranded; chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

IT **Liquid chromatographic columns**  
 (spin, separation medium supported in; chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

IT **Amines, uses**  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (tertiary, lower alkyl, counterion agent; chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

IT **Amines, uses**  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (tertiary, salts, counterion agent; chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

IT **Containers**  
 (vacuum, tray, separation medium supported in; chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

IT **9003-53-6, Polystyrene 9003-69-4, Polydivinylbenzene**  
 RL: DEV (Device component use); USES (Uses)  
 (beads; chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

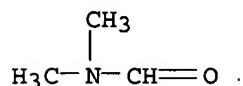
IT **71-47-6, Formate, uses 71-50-1, Acetate, uses 72-03-7, Propionate, uses 1185-59-7, Tetraethylammonium acetate 2016-38-8, Decylammonium acetate 2016-40-2, Octylammonium acetate 2190-04-7, Octadecylammonium acetate 5204-74-0, Triethylammonium acetate 7204-64-0, Tributylammonium acetate 10511-03-2, Dimethyl ammonium acetate 10534-59-5, Tetraethylammonium acetate 10581-12-1, Tetramethylammonium acetate 20726-63-0, Diethylammonium acetate 67846-20-2, Tripropylammonium acetate 69576-93-8, Tetrapropylammonium acetate**  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (counterion agent; chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

IT **68-12-2, Dimethylformamide, uses 75-05-8, Acetonitrile, uses 109-99-9, Tetrahydrofuran, uses**  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (organic solvent; chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)

IT **409-21-2, Silicon carbide, uses 1314-23-4, Zirconium oxide, uses 1344-28-1, Aluminum oxide, uses 7440-44-0, Carbon, uses 7631-86-9, Silica, uses 12033-89-5, Silicon nitride (Si<sub>3</sub>N<sub>4</sub>), uses 13463-67-7, Titanium oxide, uses**  
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
 (separation medium comprises particles of; chromatog. method and apparatus for separating and purifying polynucleotides on polymeric separation medium)



IT 371800-36-1 371800-37-2 371800-38-3 371800-39-4, 4: PN: WO0181566  
 SEQID: 4 unclaimed DNA 371800-40-7  
 RL: PRP (Properties)  
 (unclaimed nucleotide sequence; chromatog. method and apparatus for  
 separating  
 and purifying polynucleotides on polymeric separation medium)  
 IT 68-12-2, Dimethylformamide, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (organic solvent; chromatog. method and apparatus for separating and  
 purifying  
 polynucleotides on polymeric separation medium)  
 RN 68-12-2 HCAPLUS  
 CN Formamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



L141 ANSWER 14 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 2001:665846 HCAPLUS  
 DN 136:273728  
 ED Entered STN: 12 Sep 2001  
 TI The enhancement of PCR amplification by low  
 molecular-weight sulfones  
 AU Chakrabarti, R.; Schutt, C. E.  
 CS Department of Chemistry, Princeton University, Princeton  
 , NJ, 08544, USA  
 SO Gene (2001), 274(1-2), 293-298  
 CODEN: GENED6; ISSN: 0378-1119  
 PB Elsevier Science B.V.  
 DT Journal  
 LA English  
 CC 3-1 (Biochemical Genetics)  
 Section cross-reference(s): 9  
 AB DNA amplification by polymerase chain  
 reaction (PCR) is frequently complicated by the problems  
 of low yield and specificity, especially when the GC content of the target  
 sequence is high. A common approach to the optimization of such  
 reactions is the addition of small quantities of certain organic chems.,  
 such as dimethylsulfoxide (DMSO), betaine, polyethylene glycol and  
 formamide, to the reaction mixture. Even in the presence of such  
 additives, however, the amplification of GC-rich templates is  
 often ineffective. In this paper, we introduce a novel class of  
 PCR-enhancing compds., the low mol.-weight sulfones, that are  
 effective in the optimization of high GC template amplification.  
 We describe here the results of an extensive structure-activity  
 investigation in which we studied the effects of a series of six different  
 sulfones on PCR amplification. We identify two  
 sulfones, sulfolane and Me sulfone, that are  
 especially potent enhancers of high GC template amplification, and  
 show that these compds. often outperform DMSO and betaine, two of the most  
 effective PCR enhancers currently used. We conclude with a  
 brief discussion of the role that the sulfone functional group may play in  
 such enhancement.  
 ST PCR amplification enhancement low MW sulfone  
 IT PCR (polymerase chain reaction)  
 (enhancement of PCR amplification by low mol.-weight

sulfones)

IT DNA  
 RL: BSU (Biological study, unclassified); BIOL (Biological study)  
 (high GC, low mol.-weight sulfones effective in optimization of high GC  
 template **amplification**; enhancement of PCR  
**amplification** by low mol.-weight sulfones)

IT Sulfones  
 RL: BSU (Biological study, unclassified); BUU (Biological use,  
 unclassified); BIOL (Biological study); USES (Uses)  
 (low mol.-weight; enhancement of PCR **amplification** by  
 low mol.-weight sulfones)

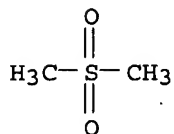
IT 67-71-0, Methyl sulfone 126-33-0,  
 Sulfolane  
 RL: BSU (Biological study, unclassified); BUU (Biological use,  
 unclassified); BIOL (Biological study); USES (Uses)  
 (especially potent enhancer of high GC template **amplification**;  
 enhancement of PCR **amplification** by low mol.-weight  
 sulfones)

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 RE

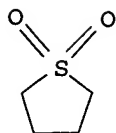
- (1) Anon; CRC Handbook of Chemistry and Physics 1970, PE70
- (2) Bachman, B; Nucleic Acids Res 1990, V18, P1309
- (3) Baskaran, N; Genome Methods 1996, V6, P633 HCAPLUS
- (4) Chakrabarti, R; Nucleic Acids Res 2001, V29, P2377 HCAPLUS
- (5) Cheng, S; Proc Natl Acad Sci USA 1994, V91, P5695 HCAPLUS
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- (8) Ivinson, A; PCR: A Practical Approach 1991, P19
- (9) Lee, C; Proc Natl Acad Sci USA 1981, V78, P2838 HCAPLUS
- (10) McDowell, D; Nucleic Acids Res 1998, V26, P3340 HCAPLUS
- (11) Miller, G; US 5545539 1996 HCAPLUS
- (12) Newton, C; PCR 1994
- (13) Pomp, D; Biotechniques 1991, V10, P58 HCAPLUS
- (14) Roux, K; PCR Primer -- A Laboratory Manual 1995, P55
- (15) Smith, T; Amplifications 1990, V5, P16
- (16) Varadaraj, K; Gene 1994, V140, P1 HCAPLUS
- (17) Weissensteiner, T; Biotechniques 1996, V21, P1102 HCAPLUS
- (18) Winship, P; Nucleic Acids Res 1989, V17, P1266 HCAPLUS

IT 67-71-0, Methyl sulfone 126-33-0,  
 Sulfolane  
 RL: BSU (Biological study, unclassified); BUU (Biological use,  
 unclassified); BIOL (Biological study); USES (Uses)  
 (especially potent enhancer of high GC template **amplification**;  
 enhancement of PCR **amplification** by low mol.-weight  
 sulfones)

RN 67-71-0 HCAPLUS  
 CN Methane, sulfonylbis- (9CI) (CA INDEX NAME)



RN 126-33-0 HCAPLUS  
 CN Thiophene, tetrahydro-, 1,1-dioxide (8CI, 9CI) (CA INDEX NAME)



L141 ANSWER 15 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2001:618200 HCAPLUS

DN 135:192476

ED Entered STN: 24 Aug 2001

TI Multiple-site reaction device and method for sequence-specific nucleic acid targeting

IN Sharat, Singh; Cao, Liching; Hooper, Herbert H.; Albagli, David; Anderson, Rolfe; Zeng, Shulin

PA Aclara Biosciences Inc., USA

SO PCT Int. Appl., 61 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C12Q001-68

CC 9-1 (Biochemical Methods)

Section cross-reference(s): 3

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001061041	A2	20010823	WO 2001-US4884	20010216 <--
	W:			AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM	
	RW:			GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG	
	CA 2400207	AA	20010823	CA 2001-2400207	20010216 <--
	EP 1259324	A2	20021127	EP 2001-910751	20010216 <--
	R:			AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR	
	JP 2003522963	T2	20030729	JP 2001-559877	20010216 <--
PRAI	US 2000-183626P	P	20000218 <--		
	WO 2001-US4884	W	20010216		

CLASS

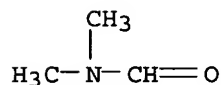
PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2001061041	ICM	C12Q001-68
WO 2001061041	ECLA	B01J019/00C; B01L003/00C6M

AB The invention concerns a method and device for performing a plurality of small-volume reactions simultaneously. The device includes an elongate or planar channel and a port for introducing such bulk-phase medium into the channel, a plurality of discrete small-volume reaction regions within the channel, and a reaction-specific reagent releasably carried on a wall portion of each reaction region. In carrying out the method of the invention, a bulk phase medium containing common reactants is added to the channel. Upon release of reaction-specific reagent from the wall portions of the reaction regions, a reagent-specific reaction can occur simultaneously in each region. The channel is dimensioned to substantially prevent convective fluid flow among the reaction regions

during such reactions. The device is demonstrated for use in sequence-specific nucleic acid reactions involving target nucleic acids present in the bulk-phase medium, where the reaction-specific reagents are nucleic acid oligomer reagents releasably bound to the wall portions, or via an immobilized ligand. Diagrams describing the apparatus assembly are given.

- ST app channel oligonucleotide immobilization nucleic acid hybridization  
PCR primers
- IT Analytical apparatus  
Electrokinetic phenomena  
Gaskets  
Genetic methods  
Immobilization, biochemical  
Lids  
Molecular association  
Molecular recognition  
Nucleic acid hybridization  
    **PCR (polymerase chain reaction)**  
        (Multiple-site reaction device and method for  
        sequence-specific nucleic acid targeting)
- IT Primers (nucleic acid)  
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
    (Multiple-site reaction device and method for sequence-specific nucleic  
    acid targeting)
- IT Oligonucleotides  
RL: ARG (Analytical reagent use); DEV (Device component use); ANST  
    (Analytical study); USES (Uses)  
    (Multiple-site reaction device and method for sequence-specific nucleic  
    acid targeting)
- IT Amplicon  
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST  
    (Analytical study); PREP (Preparation); USES (Uses)  
    (PCR; Multiple-site reaction device and method for  
    sequence-specific nucleic acid targeting)
- IT Temperature effects, biological  
    (heating and cooling for amplicons; Multiple-site reaction device and  
    method for sequence-specific nucleic acid targeting)
- IT **PCR (polymerase chain reaction)**  
    (multiplex; Multiple-site reaction device and method for  
    sequence-specific nucleic acid targeting)
- IT Reactors  
    (reaction chamber; Multiple-site reaction device and method for  
    sequence-specific nucleic acid targeting)
- IT Albumins, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
    (serum, bovine, conjugate; Multiple-site reaction device and method for  
    sequence-specific nucleic acid targeting)
- IT Polyoxyalkylenes, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
    (spacer; Multiple-site reaction device and method for sequence-specific  
    nucleic acid targeting)
- IT Gene, animal  
RL: ANT (Analyte); ANST (Analytical study)  
    ( $\beta$ -actin; Multiple-site reaction device and method for  
    sequence-specific nucleic acid targeting)
- IT 68181-17-9DP, conjugate with bovine serum albumin and 4-benzoylbenzoic  
acid  
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST  
    (Analytical study); PREP (Preparation); USES (Uses)  
    (Multiple-site reaction device and method for sequence-specific nucleic

acid targeting)  
 IT 9025-82-5, 5'-Exonuclease  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (Multiple-site reaction device and method for sequence-specific nucleic acid targeting)  
 IT 58-85-5DP, Biotin, conjugate with bovine serum albumin and benzophenone  
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
 (Multiple-site reaction device and method for sequence-specific nucleic acid targeting)  
 IT 611-95-0, 4-Benzoylbenzoic acid 611-95-0D, 4-Benzoylbenzoic acid, conjugate with bovine serum albumin, SPDP and biotin 89889-52-1  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (Multiple-site reaction device and method for sequence-specific nucleic acid targeting)  
 IT 68181-17-9  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (SPDP; Multiple-site reaction device and method for sequence-specific nucleic acid targeting)  
 IT 68-12-2, Dimethylformamide, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (anhydrous; Multiple-site reaction device and method for sequence-specific nucleic acid targeting)  
 IT 25322-68-3  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (spacer; Multiple-site reaction device and method for sequence-specific nucleic acid targeting)  
 IT 321773-07-3, 5: PN: WO0106008 SEQID: 5 unclaimed DNA 356611-22-8  
 356611-23-9 356611-25-1 356611-26-2 356611-27-3 356611-28-4  
 356611-29-5 356611-30-8 356611-31-9 356611-32-0 356611-33-1  
 356611-34-2 356611-35-3 356611-36-4 356611-37-5 356611-38-6  
 356611-39-7 356611-40-0 356611-41-1 356611-42-2  
 RL: PRP (Properties)  
 (unclaimed nucleotide sequence; multiple-site reaction device and method for sequence-specific nucleic acid targeting)  
 IT 68-12-2, Dimethylformamide, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (anhydrous; Multiple-site reaction device and method for sequence-specific nucleic acid targeting)  
 RN 68-12-2 HCAPLUS  
 CN Formamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



L141 ANSWER 16 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 2001:440406 HCAPLUS  
 DN 136:129574  
 ED Entered STN: 19 Jun 2001  
 TI The enhancement of PCR amplification by low molecular weight amides  
 AU Chakrabarti, Raj; Schutt, Clarence E.  
 CS Department of Chemistry, Princeton University, Princeton, NJ, 08544, USA  
 SO Nucleic Acids Research (2001), 29(11), 2377-2381  
 CODEN: NARHAD; ISSN: 0305-1048

PB Oxford University Press

DT Journal

LA English

CC 3-1 (Biochemical Genetics)

AB **Amplification of a DNA target by the polymerase chain reaction (PCR)** often requires laborious optimization efforts. In this regard, the use of certain organic chems. such as DMSO, polyethylene glycol, betaine and formamide as cosolvents has been found to be very helpful. Unfortunately, very little is known about the precise structural features that make these additives effective and, accordingly, the number of such chems. currently known to enhance PCR is limited. In order to address these issues, the authors decided to focus on formamide and undertook an extensive study of low mol. weight amides as a class to see how changing the substituents in the amide structure influences its effect on PCR. The authors describe here the results of this study, which involved 11 different amides, and present observations that provide a cohesive picture of structure-activity relations in this group of additives. The authors found several of these amides to be exceptionally effective and introduce them as novel PCR enhancers.

ST **PCR amplification** enhancement acetamide pyrrolidone amide

IT **PCR (polymerase chain reaction)**  
(enhancement of **PCR amplification** by low mol. weight amides)

IT Amides, biological studies

RL: ARU (Analytical role, unclassified); BUU (Biological use, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)

(low-mol.-weight; enhancement of **PCR amplification** by low mol. weight amides)

IT 60-35-5, Acetamide, biological studies 616-45-5, 2-Pyrrolidone

RL: ARU (Analytical role, unclassified); BUU (Biological use, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)

(enhancement of **PCR amplification** by low mol. weight amides)

RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

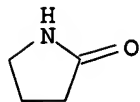
- (1) Bachman, B; Nucleic Acids Res 1990, V18, P1309
- (2) Cheng, S; Proc Natl Acad Sci USA 1994, V91, P5695 HCAPLUS
- (3) Henegariu, O; Biotechniques 1997, V23, P504 HCAPLUS
- (4) Henke, W; Nucleic Acids Res 1997, V19, P3957
- (5) Ivinson, A; PCR: A Practical Approach 1991, P19
- (6) Landre, P; PCR Strategies 1995, P3
- (7) Lee, C; Proc Natl Acad Sci USA V78, P2838 HCAPLUS
- (8) Newton, C; PCR Bios Scientific, Oxford 1994
- (9) Pomp, D; Biotechniques 1991, V10, P58 HCAPLUS
- (10) Roux, K; PCR Primer - A Laboratory Manual 1995, P55
- (11) Saiki, R; Science 1988, V239, P487 HCAPLUS
- (12) Sarkar, G; Nucleic Acids Res 1990, V18, P7465 HCAPLUS
- (13) Smith, T; Amplifications 1990, V5, P16
- (14) Varadaraj, K; Gene 1994, V140, P1 HCAPLUS
- (15) Weissensteiner, T; Biotechniques 1996, V21, P1102 HCAPLUS
- (16) Winship, P; Nucleic Acids Res 1989, V17, P1266 HCAPLUS

IT 616-45-5, 2-Pyrrolidone

RL: ARU (Analytical role, unclassified); BUU (Biological use, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)

(enhancement of **PCR amplification** by low mol. weight

amides)  
 RN 616-45-5 HCAPLUS  
 CN 2-Pyrrolidinone (8CI, 9CI) (CA INDEX NAME)



L141 ANSWER 17 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2001:152354 HCAPLUS

DN 134:190013

ED Entered STN: 02 Mar 2001

TI Reversible inactivation of thermostable **DNA polymerase**  
 or ligase with a dicarboxylic acid anhydride in an aprotic organic  
 solvent and application to PCR

IN Louwrier, Ariel

PA Advanced Biotechnologies Ltd., UK

SO Eur. Pat. Appl., 11 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM C12N009-99

ICS C12N009-12; C12Q001-68

CC 7-3 (Enzymes)

Section cross-reference(s): 3

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1078984	A1	20010228	EP 2000-307337	20000825
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	GB 2353530	A1	20010228	GB 2000-21086	20000825
	US 6479264	B1	20021112	US 2000-649707	20000825
PRAI	GB 1999-20194	A	19990827		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
EP 1078984	ICM	C12N009-99
	ICS	C12N009-12; C12Q001-68
EP 1078984	ECLA	C12N009/99; C12Q001/68D2A+527/125; C12Q001/68D4+527/125; C12Q001/68D6+527/125
GB 2353530	ECLA	C12N009/99; C12Q001/68D2A+527/125; C12Q001/68D4+527/125; C12Q001/68D6+527/125
US 6479264	NCL	435/183.000; 435/091.200; 435/184.000; 530/411.000
	ECLA	C12N009/99; C12Q001/68D2A+527/125; C12Q001/68D4+527/125; C12Q001/68D6+527/125

AB A method for reversibly inactivating thermostable **DNA polymerase** or ligase and its application to PCR is disclosed. The method comprises reacting a mixture of the thermostable **DNA polymerase** or ligase with a dicarboxylic acid anhydride, wherein the reaction is carried out using a dried **DNA polymerase** or ligase in an anhydrous aprotic organic solvent, the dicarboxylic acid anhydride being also substantially anhydrous, whereby the reaction results in essentially complete inactivation of enzyme activity.

ST **DNA polymerase** ligase inactivation dicarboxylic acid anhydride PCR; aprotic org solvent DNA

**polymerase ligase inactivation PCR**

IT Solvents  
(aprotic; reversible inactivation of thermostable **DNA polymerase** or ligase with dicarboxylic acid anhydride in aprotic organic solvent and application to **PCR**)

IT Anhydrides  
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)  
(cyclic; reversible inactivation of thermostable **DNA polymerase** or ligase with dicarboxylic acid anhydride in aprotic organic solvent and application to **PCR**)

IT **PCR (polymerase chain reaction)**  
(reversible inactivation of thermostable **DNA polymerase** or ligase with dicarboxylic acid anhydride in aprotic organic solvent and application to **PCR**)

IT 56-87-1, Lysine, biological studies  
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)  
(modification of lysine by dicarboxylic acid anhydride; reversible inactivation of thermostable **DNA polymerase** or ligase with dicarboxylic acid anhydride in aprotic organic solvent and application to **PCR**)

IT 616-02-4, Citraconic anhydride  
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)  
(reversible inactivation of thermostable **DNA polymerase** or ligase with dicarboxylic acid anhydride in aprotic organic solvent and application to **PCR**)

IT 9012-90-2, **DNA polymerase** 9015-85-4, **DNA** ligase  
RL: BPR (Biological process); BSU (Biological study, unclassified); BUU (Biological use, unclassified); BIOL (Biological study); PROC (Process); USES (Uses)  
(reversible inactivation of thermostable **DNA polymerase** or ligase with dicarboxylic acid anhydride in aprotic organic solvent and application to **PCR**)

IT 56-23-5, Carbon tetrachloride, biological studies 78-93-3, Methyl ethyl ketone, biological studies 108-94-1, Cyclohexanone, biological studies 110-86-1, Pyridine, biological studies 111-43-3, Propyl ether 126-33-0, **Sulfolane** 141-78-6, Ethyl acetate, biological studies 142-96-1, Butyl ether 1634-04-4, tert-Methyl butyl ether 63072-44-6, Methyl pentanone  
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)  
(reversible inactivation of thermostable **DNA polymerase** or ligase with dicarboxylic acid anhydride in aprotic organic solvent and application to **PCR**)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Bonnafie, D; US 5262525 A 1993 HCAPLUS  
(2) Laird, W; US 5677152 A 1997 HCAPLUS  
(3) Laird, W; US 5773258 A 1998 HCAPLUS  
(4) Palacian, E; MOLECULAR AND CELLULAR BIOCHEMISTRY 1990, V97(2), P101 HCAPLUS  
(5) Qiagen GmbH; EP 0962526 A 1999 HCAPLUS

IT 9012-90-2, **DNA polymerase**  
RL: BPR (Biological process); BSU (Biological study, unclassified); BUU (Biological use, unclassified); BIOL (Biological study); PROC (Process); USES (Uses)



(reversible inactivation of thermostable DNA  
polymerase or ligase with dicarboxylic acid anhydride in  
aprotic organic solvent and application to PCR)

RN 9012-90-2 HCAPLUS

CN Nucleotidyltransferase, deoxyribonucleate (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

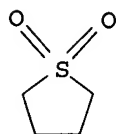
IT 126-33-0, Sulfolane

RL: BUU (Biological use, unclassified); BIOL (Biological study); USES  
(Uses)

(reversible inactivation of thermostable DNA  
polymerase or ligase with dicarboxylic acid anhydride in  
aprotic organic solvent and application to PCR)

RN 126-33-0 HCAPLUS

CN Thiophene, tetrahydro-, 1,1-dioxide (8CI, 9CI) (CA INDEX NAME)



L141 ANSWER 18 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2000:881296 HCAPLUS

DN 134:37974

ED Entered STN: 15 Dec 2000

TI RNA polynucleotide modified at the ribose 2'-OH position that are still  
capable of acting as templates in polymerization reactions

IN Goldsborough, Andrew Simon

PA Cyclops Genome Sciences Ltd., UK

SO PCT Int. Appl., 187 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C12N015-11

ICS C07H021-00

CC 3-4 (Biochemical Genetics)

Section cross-reference(s): 6, 7, 33

FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000075306	A2	20001214	WO 2000-GB1670	20000502 <--
	WO 2000075306	A3	20010517		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW:	GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	WO 2001094626	A1	20011213	WO 2000-GB1683	20000502 <--
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE,				

SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA,  
 ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM  
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 CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG  
 EP 1196631 A1 20020417 EP 2000-929665 20000502 <--  
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 IE, SI, LT, LV, FI, RO  
 US 2003039985 A1 20030227 US 2001-11495 20011026 <--  
 US 6867290 B2 20050315  
 PRAI GB 1999-10154 A 19990430 <--  
 GB 1999-10156 A 19990430 <--  
 GB 1999-10157 A 19990430 <--  
 GB 1999-10158 A 19990430 <--  
 WO 2000-GB1683 W 20000502 <--

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2000075306	ICM	C12N015-11
	ICS	C07H021-00
WO 2000075306	ECLA	C07H021/00; C07H021/00C4; C12P019/34; C12Q001/68 <--
WO 2001094626	ECLA	C07H021/00C4; C12P019/34; C12Q001/68 <--
US 2003039985	NCL	536/023.100; 435/006.000; 435/091.100; 536/024.300
	ECLA	C07H021/00; C07H021/00C4; C12P019/34; C12Q001/68 <--

OS MARPAT 134:37974

AB Provided is a polynucleotide comprising mRNA, rRNA or viral RNA, greater than 25% of the ribose rings of which are covalently modified at the 2'-OH position. Further provided is a method for producing a double-stranded oligo- or polynucleotide from a template, which comprises contacting the template with a plurality of mononucleotides comprising UTP, dTTP and/or dUTP, ATP and/or dATP, GTP and/or dGTP, and CTP and/or dCTP, in the presence of a nucleic acid **polymerase** and optionally a template primer under conditions to polymerize the mononucleotides to form a nucleic acid strand complementary to the template, wherein the template comprises an oligo- or polyribonucleotide, a proportion of the ribose rings of which are covalently modified at the 2' -OH position to bear a substituent which enables replication of the template by the nucleic acid **polymerase**. Thus, for example, RNA may be modified by formylation at the ribose 2'-OH position and still serve as an excellent template for reverse transcriptases. The consequence of modifying the ribose 2'-OH groups is to increase the stability and intactness of the RNA, allowing complete cDNA copies and accurate measurements of its size and abundance to be made. It is preferable to choose 2'-OH modifications that provide the maximum stability to the modified RNA, yet can be readily removed under mild conditions without leading to RNA chain cleavage. A wide variety of acylation, acetylation, and other modification **reaction** reagents and catalysts are described. Also provided is use of a polynucleotide comprising mRNA, rRNA or viral RNA, a proportion of the ribose rings of which are covalently modified at the 2' -OH position, in a hybridization **reaction**. RNA modified by acetylation has altered hybridization properties, probably reflecting a lower T<sub>m</sub> of the hybrid, and standard conditions for Northern blotting are probably too stringent and a lower temperature should be chosen.

ST RNA modification polymn replication transcription; acylation RNA polymn replication transcription; acetylation RNA polymn replication transcription

IT Acetylation  
 Acetylation catalysts  
 Acylation  
 Acylation catalysts

Dot blot hybridization  
 Formylation  
 Northern blot hybridization  
 Nucleic acid hybridization  
   **PCR (polymerase chain reaction)**  
 Reverse transcription  
 Sialylation  
 Transcription, genetic  
   (RNA polynucleotide modified at the ribose 2'-OH position that are  
   still capable of acting as templates in polymerization reactions)  
 IT Oligonucleotides  
   Polynucleotides  
   RNA  
   Viral RNA  
   mRNA  
   rRNA  
   tRNA  
   RL: BPR (Biological process); BSU (Biological study, unclassified); RCT  
   (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or  
   reagent)  
   (RNA polynucleotide modified at the ribose 2'-OH position that are  
   still capable of acting as templates in polymerization reactions)  
 IT **PCR (polymerase chain reaction)**  
   (RT-PCR (reverse transcription-PCR); RNA  
   polynucleotide modified at the ribose 2'-OH position that are still  
   capable of acting as templates in polymerization reactions)  
 IT Halides  
   RL: CAT (Catalyst use); USES (Uses)  
   (acetylation catalyst; RNA polynucleotide modified at the ribose 2'-OH  
   position that are still capable of acting as templates in polymerization  
   reactions)  
 IT Acid halides  
   RL: RCT (Reactant); RACT (Reactant or reagent)  
   (acylation reagent; RNA polynucleotide modified at the ribose 2'-OH  
   position that are still capable of acting as templates in polymerization  
   reactions)  
 IT Carboxylic acids, reactions  
   RL: RCT (Reactant); RACT (Reactant or reagent)  
   (condensation reaction with; RNA polynucleotide modified at the ribose  
   2'-OH position that are still capable of acting as templates in  
 polymerization  
   reactions)  
 IT Diagnosis  
   (genetic; RNA polynucleotide modified at the ribose 2'-OH position that  
   are still capable of acting as templates in polymerization reactions)  
 IT Solvents  
   (organic; RNA polynucleotide modified at the ribose 2'-OH position that  
   are still capable of acting as templates in polymerization reactions)  
 IT Nitriles, reactions  
   RL: RCT (Reactant); RACT (Reactant or reagent)  
   (oxo; RNA polynucleotide modified at the ribose 2'-OH position that are  
   still capable of acting as templates in polymerization reactions)  
 IT RNA formation  
   (replication; RNA polynucleotide modified at the ribose 2'-OH position  
   that are still capable of acting as templates in polymerization reactions)  
 IT Condensation reaction  
   (with carboxylic acids; RNA polynucleotide modified at the ribose 2'-OH  
   position that are still capable of acting as templates in polymerization  
   reactions)  
 IT **9012-90-2, DNA-dependent DNA polymerase**

9026-28-2, RNA-dependent RNA polymerase

9037-17-6, Nucleic acid polymerase 9068-38-6,

RNA-dependent DNA polymerase

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); CAT (Catalyst use); BIOL (Biological study); USES (Uses)

(RNA polynucleotide modified at the ribose 2'-OH position that are still capable of acting as templates in polymerization reactions)

IT 3970-21-6, 2-Methoxyethoxymethyl chloride 13154-24-0, Triisopropylchlorosilane

RL: RCT (Reactant); RACT (Reactant or reagent)

(RNA polynucleotide modified at the ribose 2'-OH position that are still capable of acting as templates in polymerization reactions)

IT 998-40-3, Tributylphosphine 16984-48-8, Fluoride, uses

RL: CAT (Catalyst use); USES (Uses)

(acetylation catalyst; RNA polynucleotide modified at the ribose 2'-OH position that are still capable of acting as templates in polymerization reactions)

IT 2466-76-4

RL: RCT (Reactant); RACT (Reactant or reagent)

(acetylation reagent; RNA polynucleotide modified at the ribose 2'-OH position that are still capable of acting as templates in polymerization reactions)

IT 142-08-5, 2-Hydroxypyridine 1122-58-3, 4-Dimethylaminopyridine 7188-38-7, tert-Butyl isocyanide 26445-05-6, Aminopyridine 30346-87-3, Methylimidazole

RL: CAT (Catalyst use); USES (Uses)

(acylation catalyst; RNA polynucleotide modified at the ribose 2'-OH position that are still capable of acting as templates in polymerization reactions)

IT 75-36-5, Acetyl chloride 106-31-0, Butyric anhydride 123-76-2, Levulinic acid 541-88-8, Chloroacetic anhydride 2082-59-9, Pentanoic anhydride 2258-42-6, Acetic formic anhydride

RL: RCT (Reactant); RACT (Reactant or reagent)

(acylation reagent; RNA polynucleotide modified at the ribose 2'-OH position that are still capable of acting as templates in polymerization reactions)

IT 7772-99-8, Tin dichloride, uses

RL: CAT (Catalyst use); USES (Uses)

(catalyst for 2'-Me ether formation; RNA polynucleotide modified at the ribose 2'-OH position that are still capable of acting as templates in polymerization reactions)

IT 78823-32-2, Benzoic formic anhydride

RL: RCT (Reactant); RACT (Reactant or reagent)

(formylation reagent; RNA polynucleotide modified at the ribose 2'-OH position that are still capable of acting as templates in polymerization reactions)

IT 26299-14-9, Pyridinium chlorochromate

RL: CAT (Catalyst use); USES (Uses)

(oxidation catalyst; RNA polynucleotide modified at the ribose 2'-OH position that are still capable of acting as templates in polymerization reactions)

IT 17455-13-9, Crown 18-6

RL: RCT (Reactant); RACT (Reactant or reagent)

(protection with; RNA polynucleotide modified at the ribose 2'-OH position that are still capable of acting as templates in polymerization reactions)

IT 74-88-4, Methyl iodide, reactions 334-88-3, Diazomethane

RL: RCT (Reactant); RACT (Reactant or reagent)

(reagent for 2'-Me ether formation; RNA polynucleotide modified at the

ribose 2'-OH position that are still capable of acting as templates in polymerization reactions)

IT 701-99-5, Phenoxyacetyl chloride  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reagent; RNA polynucleotide modified at the ribose 2'-OH position that are still capable of acting as templates in polymerization reactions)

IT 429-41-4, TBAF 73602-61-6  
 RL: CAT (Catalyst use); USES (Uses)  
 (silylation catalyst; RNA polynucleotide modified at the ribose 2'-OH position that are still capable of acting as templates in polymerization reactions)

IT 68-12-2, Dimethylformamide, uses 109-99-9, Tetrahydrofuran, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (solvent for modification reaction; RNA polynucleotide modified at the ribose 2'-OH position that are still capable of acting as templates in polymerization reactions)

IT 9012-90-2, DNA-dependent DNA polymerase  
 9026-28-2, RNA-dependent RNA polymerase  
 9037-17-6, Nucleic acid polymerase 9068-38-6, RNA-dependent DNA polymerase  
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); CAT (Catalyst use); BIOL (Biological study); USES (Uses)  
 (RNA polynucleotide modified at the ribose 2'-OH position that are still capable of acting as templates in polymerization reactions)

RN 9012-90-2 HCAPLUS  
 CN Nucleotidyltransferase, deoxyribonucleate (9CI) (CA INDEX NAME)

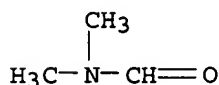
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 9026-28-2 HCAPLUS  
 CN Nucleotidyltransferase, ribonucleate, RNA-dependent (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 9037-17-6 HCAPLUS  
 CN Nucleotidyltransferase, nucleate (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 RN 9068-38-6 HCAPLUS  
 CN Nucleotidyltransferase, deoxyribonucleate, RNA-dependent (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
 IT 68-12-2, Dimethylformamide, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (solvent for modification reaction; RNA polynucleotide modified at the ribose 2'-OH position that are still capable of acting as templates in polymerization reactions)

RN 68-12-2 HCAPLUS  
 CN Formamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



L141 ANSWER 19 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 2000:384565 HCAPLUS  
 DN 133:28236

ED Entered STN: 09 Jun 2000  
 TI Methods and compositions for performing an array of chemical reactions on  
 a support surface  
 IN Zebala, John A.  
 PA Syntrix Biochip, Inc., USA  
 SO PCT Int. Appl., 157 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 IC ICM G01N033-68  
 CC 9-1 (Biochemical Methods)  
 Section cross-reference(s): 1, 3, 26, 33, 80

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	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000033084	A2	20000608	WO 1999-US28021	19991123 <--
	WO 2000033084	A3	20000810		
	W:				
	AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU,				
	CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL,				
	IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,				
	MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI,				
	SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM,				
	AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW:				
	GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE,				
	DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,				
	CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	AU 2000018317	A5	20000619	AU 2000-18317	19991123 <--
	EP 1163374	A2	20011219	EP 1999-961813	19991123 <--
	R:				
	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,				
	IE, SI, LT, LV, FI, RO				
	JP 2002531470	T2	20020924	JP 2000-585669	19991123 <--
PRAI	US 1998-110527P	P	19981201	<--	
	US 1999-326479	A	19990604	<--	
	WO 1999-US28021	W	19991123	<--	

## CLASS

	PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
	WO 2000033084	ICM	G01N033-68
	WO 2000033084	ECLA	B01J019/00C; C12Q001/68A6; C12Q001/68B14; G03F007/00R; C07B061/00L; C07H021/00F; C07K001/04C; C07K014/00B1 <--
AB	Compns. and methods are provided for performing regionally selective solid-phase chemical synthesis of organic compds. Such methods may employ solvent-resistant photoresist compns. to prepare arrays of organic compds., such as ligands, for use within a variety of diagnostic and drug discovery assays. Ligand-arrays may comprise, for example, nucleobase polymers that are resistant to degradative enzymes. DNA probes and enalaprilat analogs were synthesized on glass slides using a photoresist method and used in hybridization assays and ACE inhibitory activity screening.		
ST	support array chem reaction photoresist; ligand array; DNA hybridization immobilized probe; ACE inhibitor screening enalaprilat analog solid phase synthesis; nucleic acid array		
IT	Gene, animal		
	RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process) (BRCA1, of human, probe complementary to; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)		
IT	Gene, animal		
	RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)		

- (BRCA2, of human, probe complementary to; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)
- IT Gene, animal  
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)  
(CFTR, of human, probe complementary to; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)
- IT Nucleic acid hybridization  
(DNA-DNA; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)
- IT Gene, animal  
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)  
(TP53, of human, probe complementary to; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)
- IT Silanes  
RL: DEV (Device component use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)  
(alkoxy, as linkers; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)
- IT Leukocyte  
(antigen of, of human, probe complementary to; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)
- IT Polyamides, preparation  
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(as photoresists; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)
- IT Glass, reactions  
RL: DEV (Device component use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)  
(as substrate; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)
- IT Acid halides  
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(chlorides, diacid, condensates with diamines, as photoresists; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)
- IT Cell  
Cell membrane  
Organelle  
(compds. binding to, identification of; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)
- IT Antibodies  
Enzymes, uses  
RL: CAT (Catalyst use); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)  
(compds. binding to, identification of; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)
- IT Agglutinins and Lectins  
Carbohydrates, uses  
Polysaccharides, uses  
RL: DEV (Device component use); PEP (Physical, engineering or chemical

process); PROC (Process); USES (Uses)  
(compds. binding to, identification of; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)

IT Phenolic resins, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(compds., in photoresists; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)

IT Amines, preparation  
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(diamines, condensates with phenylenediamine and diacid chloride mixture, as photoresists; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)

IT Quinones  
RL: NUU (Other use, unclassified); USES (Uses)  
(diazo-, in photoresists; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)

IT Metal alkoxides  
RL: DEV (Device component use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)  
(hydrolyzed, polymers of, on surface; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)

IT Polymers, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(in photoresists; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)

IT Receptors  
RL: ARG (Analytical reagent use); PEP (Physical, engineering or chemical process); RCT (Reactant); ANST (Analytical study); PROC (Process); RACT (Reactant or reagent); USES (Uses)  
(ligand analogs binding to; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)

IT Acids, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(linkers cleavable by; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)

IT Coating materials  
(masking; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)

IT Adhesives  
Analysis  
Chromatography  
DNA sequence analysis  
Diagnosis  
Drug screening  
Electrophoresis  
Human immunodeficiency virus  
Indicators  
Mass spectrometry  
NMR spectroscopy  
Negative photoresists  
Nucleic acid hybridization  
PCR (polymerase chain reaction)  
Photoresists  
Positive photoresists  
Protein sequence analysis  
RNA sequence analysis  
Radiation



Reactors  
Solvents  
Surface  
Synthesis  
    (methods and compns. for performing arrays of chemical reactions  
    on support surfaces using photoresists)

IT Probes (nucleic acid)  
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
    (methods and compns. for performing arrays of chemical reactions on  
    support surfaces using photoresists)

IT Ligands  
RL: ARG (Analytical reagent use); DEV (Device component use); PEP  
    (Physical, engineering or chemical process); RCT (Reactant); ANST  
    (Analytical study); PROC (Process); RACT (Reactant or reagent); USES  
    (Uses)  
    (methods and compns. for performing arrays of chemical reactions on  
    support surfaces using photoresists)

IT Peptide nucleic acids  
RL: ARG (Analytical reagent use); DEV (Device component use); PEP  
    (Physical, engineering or chemical process); RCT (Reactant); SPN  
    (Synthetic preparation); ANST (Analytical study); PREP (Preparation); PROC  
    (Process); RACT (Reactant or reagent); USES (Uses)  
    (methods and compns. for performing arrays of chemical reactions on  
    support surfaces using photoresists)

IT Nucleic acids  
Polynucleotides  
Proteins, general, reactions  
Reagents  
RL: ARG (Analytical reagent use); DEV (Device component use); RCT  
    (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES  
    (Uses)  
    (methods and compns. for performing arrays of chemical reactions on  
    support surfaces using photoresists)

IT Antisense oligonucleotides  
Organic compounds, reactions  
RL: DEV (Device component use); RCT (Reactant); RACT (Reactant or  
    reagent); USES (Uses)  
    (methods and compns. for performing arrays of chemical reactions on  
    support surfaces using photoresists)

IT Adsorption  
    (mols. attachment to surface by; methods and compns. for performing  
    arrays of chemical reactions on support surfaces using photoresists)

IT Peptides, reactions  
RL: ARG (Analytical reagent use); DEV (Device component use); PEP  
    (Physical, engineering or chemical process); RCT (Reactant); ANST  
    (Analytical study); PROC (Process); RACT (Reactant or reagent); USES  
    (Uses)  
    (nucleic acid mimics; methods and compns. for performing arrays of  
    chemical reactions on support surfaces using photoresists)

IT Antigens  
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL  
    (Biological study); PROC (Process)  
    (of leukocyte, of human, probe complementary to; methods and compns.  
    for performing arrays of chemical reactions on support surfaces using  
    photoresists)

IT Particles  
    (of metal oxide, gelled network of, on surface; methods and compns. for  
    performing arrays of chemical reactions on support surfaces using  
    photoresists)

IT Genetic polymorphism

(of single nucleotide of human, probe complementary to; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)

IT Oxides (inorganic), reactions

RL: DEV (Device component use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)

(particles, gelled network of, on surface; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)

IT Materials

(photoactive chems., as linkers; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)

IT Microscopes

(slides; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)

IT 51-20-7, 5-Bromouracil 51-21-8, 5-Fluorouracil 58-63-9, Inosine 65-71-4, Thymine 66-22-8, Uracil, uses 66-22-8D, Uracil, pseudo-, derivs., uses 68-94-0, Hypoxanthine 69-89-6, Xanthine 71-30-7, Cytosine 73-24-5, Adenine, uses 73-40-5, Guanine 141-90-2, Thiouracil 333-49-3, 2-Thiocytosine 443-72-1 504-07-4, Dihydrouracil 554-01-8, 5-Methylcytosine 578-76-7, 7-Methylguanine 591-28-6, 4-Thiouracil 636-26-0, 5-Methyl-2-thiouracil 696-07-1, 5-Iodouracil 938-85-2, 1-Methylguanine 1445-08-5, 2-Methyladenine 1445-15-4 1500-85-2, 7-Deazaadenine 1820-81-1, 5-Chlorouracil 1904-98-9, 2,6-Diaminopurine 2140-73-0, 1-Methylinosine 2365-40-4, N6-Isopentenyladenine 4776-08-3, 3-Methylcytosine 5142-22-3, 1-Methyladenine 6623-81-0, 5-Methoxyuracil 7355-55-7, 7-Deazaguanine 10030-78-1 14631-20-0 14886-75-0 20758-33-2 31458-37-4 72704-66-6 273752-46-8 273752-47-9 273752-48-0 273752-50-4 273752-52-6

RL: DEV (Device component use); PRP (Properties); USES (Uses)

(array of nucleobase polymers containing; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)

IT 82601-53-4, AZ 351

RL: NUU (Other use, unclassified); USES (Uses)

(as developer; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)

IT 76390-92-6P 273752-64-0P 273752-65-1P 273752-66-2P 273752-67-3P 273752-68-4P 273752-69-5P 273752-70-8P 273935-21-0P

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)

(as enalaprilat analog, ACE inhibitory activity of; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)

IT 64967-39-1

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)

(as indicator with angiotensin converting enzyme; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)

IT 101268-32-0 134978-97-5

RL: DEV (Device component use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)

(as linkers; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)

IT 273752-54-8P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(as photoactive polyamide; methods and compns. for performing arrays of

- chemical reactions on support surfaces using photoresists)
- IT 99-63-8DP, Isophthaloyl chloride, mixture with diacid chloride, condensates with diamines 100-20-9DP, Terephthaloyl chloride, mixture with isophthaloyl chloride, condensates with diamines 106-50-3DP, 1,4-Phenylenediamine, condensates with diamine and diacid chloride mixture 108-45-2DP, 1,3-Phenylenediamine, condensates with diamine and diacid chloride mixture 2784-96-5DP, condensates with phenylenediamine and diacid chloride mixture 81871-61-6DP, condensates with phenylenediamine and diacid chloride mixture
- RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
- (as photoresists; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)
- IT 126039-24-5, AZ 1512
- RL: NUU (Other use, unclassified); USES (Uses)
- (as pos. photoresist; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)
- IT 9015-82-1, Angiotensin-converting enzyme
- RL: CAT (Catalyst use); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
- (compds. binding to, identification of; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)
- IT 76-05-1, Trifluoroacetic acid, uses 7664-41-7, Ammonia, uses
- RL: NUU (Other use, unclassified); USES (Uses)
- (for detachment of compds.; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)
- IT 9001-24-5, Blood-coagulation factor V
- RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
- (human gene for, probe complementary to; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)
- IT 9003-35-4D, compds.
- RL: NUU (Other use, unclassified); USES (Uses)
- (in photoresists; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)
- IT 156-06-9, Phenylpyruvic acid 328-50-7, 2-Ketoglutaric acid 5461-32-5, 2-Nitrophenylpyruvic acid
- RL: RCT (Reactant); RACT (Reactant or reagent)
- (in preparation of enalaprilat analog on solid phase; methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)
- IT 76420-72-9D, Enalaprilat, analogs
- RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)
- (methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)
- IT 7631-86-9, Silica, uses
- RL: DEV (Device component use); USES (Uses)
- (methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)
- IT 78-10-4D, Tetraethoxysilane, hydrolyzed, on surface
- RL: DEV (Device component use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
- (methods and compns. for performing arrays of chemical reactions on support surfaces using photoresists)
- IT 68-12-2, Dimethylformamide, uses 127-19-5, Dimethylacetamide 872-50-4, N-Methylpyrrolidone, uses
- RL: NUU (Other use, unclassified); USES (Uses)

$$\begin{array}{c} \text{CH}_3 \\ | \\ \text{H}_3\text{C}-\text{N}-\text{CH}=\text{O} \end{array}$$
$$\begin{array}{c} \text{Me} \\ | \\ \text{Me}-\text{N}-\text{Ac} \end{array}$$
CN1CCCC1=O

L141 ANSWER 20 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1999:311124 HCAPLUS  
 DN 130:335003  
 ED Entered STN: 21 May 1999  
 TI Method for high resolution liquid chromatographic separation of  
 polynucleotides  
 IN Gjerde, Douglas T.; Taylor, Paul D.; Haefele, Robert M.  
 PA Transgenomic, Inc., USA  
 SO PCT Int. Appl., 58 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 IC ICM B01D015-08  
 ICS C01H021-00  
 CC 9-3 (Biochemical Methods)  
 Section cross-reference(s): 33  
 FAN.CNT 34

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PI	WO 9922839	A1	19990514	WO 1998-US23159	19981030 <--
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE,				
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	KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX,				
	NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT,				
	UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES,				
	FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI,				
	CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	US 6287822	B1	20010911	US 1998-129105	19980804 <--
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	AU 9912942	A1	19990524	AU 1999-12942	19981030 <--
	AU 751737	B2	20020829		
	US 6024878	A	20000215	US 1998-183047	19981030 <--
	EP 1056528	A1	20001206	EP 1998-956414	19981030 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,				
	IE, FI				
	JP 2001521729	T2	20011113	JP 2000-518763	19981030 <--
	US 6342161	B1	20020129	US 2000-481476	20000111 <--
	US 6309549	B1	20011030	US 2000-493779	20000128 <--
	US 6355165	B1	20020312	US 2000-580302	20000526 <--
	US 6461819	B1	20021008	US 2000-643120	20000821 <--
	US 2001023848	A1	20010927	US 2001-828352	20010405 <--
	US 6488855	B2	20021203		
	US 2001047961	A1	20011206	US 2001-828346	20010405 <--
	US 6491821	B2	20021012		
	US 2002003109	A1	20020110	US 2001-828315	20010405 <--
	US 6503397	B2	20030107		
	US 2001032817	A1	20011025	US 2001-848385	20010502 <--
	US 6521123	B2	20030218		
	US 2002038786	A1	20020404	US 2001-848386	20010502 <--
	US 6524480	B2	20030225		
	US 2002169309	A1	20021114	US 2001-912608	20010724 <--
	US 2002158017	A1	20021031	US 2002-54214	20020121 <--
	US 2004034211	A1	20040219	US 2002-97397	20020313 <--
	US 2002197629	A1	20021226	US 2002-121552	20020412 <--
	US 2003144500	A1	20030731	US 2002-157695	20020528 <--
	US 2003102260	A1	20030605	US 2002-293625	20021112 <--
	US 2003165941	A1	20030904	US 2002-308576	20021202 <--
PRAI	US 1997-64428P	P	19971030	<--	
	US 1998-70467P	P	19980105	<--	

US 1998-58337	A	19980410	<--
US 1998-58580	A	19980410	<--
US 1998-129105	A	19980804	<--
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US 1997-49123P	P	19970610	<--
US 1997-54788P	P	19970805	<--
US 1997-56012P	P	19970818	<--
US 1997-56500P	P	19970820	<--
US 1997-61445P	P	19971009	<--
US 1997-62412P	P	19971014	<--
US 1997-62413P	P	19971014	<--
US 1997-62690P	P	19971022	<--
US 1997-63835P	P	19971030	<--
US 1997-67269P	P	19971203	<--
US 1997-67679P	P	19971205	<--
US 1997-69313P	P	19971205	<--
US 1998-70572P	P	19980106	<--
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US 1998-77875P	P	19980313	<--
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US 1998-78523P	P	19980318	<--
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US 1998-89606P	P	19980617	<--
US 1998-89675P	P	19980617	<--
US 1998-93844P	P	19980722	<--
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US 1998-99825P	P	19980910	<--
US 1998-172920	A1	19981014	<--
US 1998-183047	A3	19981030	<--
US 1998-183123	A1	19981030	<--
US 1998-183450	A1	19981030	<--
WO 1998-US23159	W	19981030	<--
US 1999-117178P	P	19990125	<--
US 1999-117211P	P	19990125	<--
US 1999-119936P	P	19990212	<--
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US 1999-123301P	P	19990303	<--
US 1999-129838P	P	19990416	<--
US 1999-295474	A3	19990419	<--
US 1999-130700P	P	19990423	<--
US 1999-318407	A3	19990525	<--
US 1999-350774	A1	19990709	<--
US 1999-399472	A1	19990920	<--
US 1999-457125	B2	19991207	<--
US 1999-469551	B1	19991222	<--
US 2000-481476	A1	20000111	<--
US 2000-493779	A3	20000128	<--
US 2000-698942	A1	20001026	<--
US 2001-828315	A1	20010405	
US 2001-912608	B1	20010724	

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES	
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	ICS	C01H021-00	
US 6287822	NCL	435/091.200; 210/198.200; 210/635.000; 435/006.000; 536/022.100; 536/025.400	
	ECLA	C12Q001/68A4+565/137; C12Q001/68B6+565/137+527/107	<--
US 6024878	NCL	210/635.000; 210/656.000; 435/006.000; 536/025.400	<--
US 6342161	NCL	210/635.000; 210/656.000; 435/006.000; 536/025.400	<--

US 6309549	NCL	210/635.000; 210/198.200; 210/656.000; 435/006.000; 536/025.400	<--
US 6355165	NCL	210/198.200; 210/175.000; 210/656.000	
	ECLA	B01D015/16B; B01D015/20; B01D015/36P; G01N030/30; G01N030/54; G01N030/96	<--
US 6461819	NCL	435/006.000; 422/050.000; 422/068.100	<--
US 2001023848	NCL	210/635.000; 210/198.200; 210/656.000; 435/006.000; 536/025.400	<--
US 2001047961	NCL	210/635.000; 210/198.200; 210/656.000; 435/006.000; 536/025.400	<--
US 2002003109	NCL	210/635.000; 210/198.200; 210/656.000; 210/659.000; 435/006.000; 536/025.400	<--
US 2001032817	NCL	210/198.200; 210/502.100; 210/635.000; 210/656.000; 435/006.000; 536/025.400	<--
US 2002038786	NCL	210/635.000; 210/198.200; 210/656.000; 435/006.000; 536/025.400	<--
US 2002169309	NCL	536/025.400; 435/006.000; 210/656.000	
	ECLA	C12N015/10A2B; C12Q001/68B6+565/137+527/107; C12Q001/68B6; C12Q001/68B10	<--
US 2002158017	NCL	210/635.000; 210/656.000; 435/006.000; 536/025.400	<--
US 2004034211	NCL	536/025.400; 435/006.000	
	ECLA	C12N015/10A2B; C12Q001/68B6+565/137+527/107; C12Q001/68B6	<--
US 2002197629	NCL	435/006.000; 536/025.400	<--
US 2003144500	NCL	536/025.400; 435/006.000	
	ECLA	C12N015/10A2B; C12Q001/68B6+565/137+527/107; C12Q001/68B6; C12Q001/68B10	<--
US 2003102260	NCL	210/635.000; 210/656.000; 210/198.200; 435/006.000; 536/025.400	<--
US 2003165941	NCL	435/006.000; 702/020.000	
	ECLA	B01D015/36P; C12N015/10A2B; C12Q001/68B6+565/137+527/107; C12Q001/68B6; C12Q001/68E+565/137+527/107	<--

AB Mixts. of dsDNA fragments are separated by Matched Ion Polynucleotide Chromatog. (MIPC) using an isocratic mobile phase to elute polynucleic acid from an MIPC column. The use of isocratic elution conditions provides a marked improvement in the separation of dsDNA fragments compared to gradient elution conditions. Isocratic elution can also be used to effect an improved separation of heteroduplex and homoduplex mixts. when the chromatog. is performed under partially denaturing conditions. In addition, dsDNA fragments are bound to the stationary phase under isocratic conditions until a solvent concentration is reached which releases fragments of a

particular base pair length range. This separation process is different from the equilibrium partitioning process observed under gradient elution conditions.

ST high resohn liq chromatog sepn polynucleotide

IT Liquid chromatography

(Matched Ion Polynucleotide Chromatog.; method for high resolution liquid chromatog. separation of polynucleotides)

IT DNA

RL: ANT (Analyte); PEP (Physical, engineering or chemical process); ANST (Analytical study); PROC (Process)

(double-stranded, fragments; method for high resolution liquid chromatog. separation of polynucleotides)

IT Polysaccharides, uses

RL: NUU (Other use, unclassified); USES (Uses)

(insol.; method for high resolution liquid chromatog. separation of polynucleotides)

IT Quaternary ammonium compounds, uses

RL: NUU (Other use, unclassified); USES (Uses)  
 (lower alkyl trialkyl; method for high resolution liquid chromatog.  
 separation of  
 polynucleotides)

IT Anions  
 Counterions  
 PCR (polymerase chain reaction)  
 Particles  
 (method for high resolution liquid chromatog. separation of polynucleotides)

IT Polynucleotides  
 RL: ANT (Analyte); PEP (Physical, engineering or chemical process); ANST  
 (Analytical study); PROC (Process)  
 (method for high resolution liquid chromatog. separation of polynucleotides)

IT Diatomite  
 Esters, uses  
 Ethers, uses  
 Hydrocarbons, uses  
 Nitriles, uses  
 Polymers, uses  
 Quaternary ammonium compounds, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (method for high resolution liquid chromatog. separation of polynucleotides)

IT Cations  
 (multivalent; method for high resolution liquid chromatog. separation of  
 polynucleotides)

IT Solvents  
 (organic; method for high resolution liquid chromatog. separation of  
 polynucleotides)

IT Nucleic acids  
 RL: ANT (Analyte); PEP (Physical, engineering or chemical process); ANST  
 (Analytical study); PROC (Process)  
 (poly-; method for high resolution liquid chromatog. separation of  
 polynucleotides)

IT Amines, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (primary, lower alkyl; method for high resolution liquid chromatog.  
 separation of  
 polynucleotides)

IT Amines, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (secondary, lower alkyl; method for high resolution liquid chromatog.  
 separation  
 of polynucleotides)

IT Amines, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (tertiary, lower alkyl; method for high resolution liquid chromatog.  
 separation  
 of polynucleotides)

IT 23377-49-3  
 RL: ANT (Analyte); ANST (Analytical study)  
 (method for high resolution liquid chromatog. separation of polynucleotides)

IT 64-17-5, Ethanol, uses 68-12-2, Dimethylformamide, uses  
 71-47-6, Formate, uses 71-50-1, uses 72-03-7, Propionate, uses  
 109-99-9, Tetrahydrofuran, uses 409-21-2, Silicon carbide (SiC), uses  
 1185-59-7, Tetraethylammonium acetate 1314-23-4, Zirconium oxide, uses  
 1344-28-1, Aluminum oxide, uses 2016-38-8, Decylammonium acetate  
 2016-40-2, Octylammonium acetate 2190-04-7, Octadecylammonium acetate  
 3812-32-6, Carbonate, uses 5204-74-0, Triethylammonium acetate  
 7204-64-0, Tributylammonium acetate 7346-79-4 7440-44-0, Carbon, uses  
 7631-86-9, Silica, uses 10534-59-5, Tetraethylammonium acetate



10581-12-1, Tetramethylammonium acetate 13463-67-7, Titanium oxide, uses  
 14265-44-2, Phosphate, uses 14797-55-8, Nitrate, uses 14808-79-8,  
 Sulfate, uses 16887-00-6, Chloride, uses 20726-63-0, Diethylammonium  
 acetate 24608-93-3 24959-67-9, Bromide, uses 27593-14-2 56285-72-4  
 67846-20-2, Tripropylammonium acetate 69576-93-8, Tetrapropylammonium  
 acetate 173474-19-6 205490-75-1 224047-27-2 224047-28-3  
 224047-29-4

RL: NUU (Other use, unclassified); USES (Uses)

(method for high resolution liquid chromatog. separation of polynucleotides)

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Bishop; US 5612456 1997 HCAPLUS
- (2) Bonn; US 5585236 1996
- (3) Carr; US 5205929 1993 HCAPLUS
- (4) Lin; US 5207914 1993 HCAPLUS
- (5) Oefner; US 5795976 1998 HCAPLUS
- (6) Oefner; Am J Human Genet 1995, V57, PA66
- (7) Shaltiel; US 3917527 1975 HCAPLUS
- (8) Snyder; Introduction to Modern Liquid Chromatography Second Edition 1979, P186

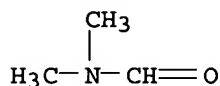
IT 68-12-2, Dimethylformamide, uses

RL: NUU (Other use, unclassified); USES (Uses)

(method for high resolution liquid chromatog. separation of polynucleotides)

RN 68-12-2 HCAPLUS

CN Formamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



L141 ANSWER 21 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1998:719308 HCAPLUS

DN 130:1996

ED Entered STN: 12 Nov 1998

TI Improved liquid chromatographic media for polynucleotide separation

IN Gjerde, Douglas T.; Taylor, Paul D.

PA Transgenomic, Inc., USA

SO PCT Int. Appl., 59 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM B01D015-08

ICS C07H021-00; C07H021-02; C07H021-04

CC 9-3 (Biochemical Methods)

FAN.CNT 34

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PI	WO 9848914	A1	19981105	WO 1998-US8293	19980424 <--
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	RW:	GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG			
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US 6355165	B1	20020312	US 2000-580302	20000526 <--
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US 6488855	B2	20021203		
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US 6491821	B2	20021012		
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US 6503397	B2	20030107		
US 2002038786	A1	20020404	US 2001-848386	20010502 <--
US 6524480	B2	20030225		
US 2003102260	A1	20030605	US 2002-293625	20021112 <--
PRAI US 1997-44856P	P	19970425	<--	
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US 1997-59527P	P	19970922	<--	
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US 1997-49123P	P	19970610	<--	
US 1997-63835P	P	19971030	<--	
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US 1998-129105	A2	19980804	<--	
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US 1998-183047	A3	19981030	<--	
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US 1999-295474	A3	19990419	<--	
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US 1999-399472	A1	19990920	<--	
US 2001-828315	A1	20010405		

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 9848914	ICM	B01D015-08
	ICS	C07H021-00; C07H021-02; C07H021-04
US 6342161	NCL	210/635.000; 210/656.000; 435/006.000; 536/025.400 <--
US 6355165	NCL	210/198.200; 210/175.000; 210/656.000
	ECLA	B01D015/16B; B01D015/20; B01D015/36P; G01N030/30; G01N030/54; G01N030/96 <--
US 2001023848	NCL	210/635.000; 210/198.200; 210/656.000; 435/006.000; 536/025.400 <--
US 2001047961	NCL	210/635.000; 210/198.200; 210/656.000; 435/006.000; 536/025.400 <--
US 2002003109	NCL	210/635.000; 210/198.200; 210/656.000; 210/659.000; 435/006.000; 536/025.400 <--
US 2002038786	NCL	210/635.000; 210/198.200; 210/656.000; 435/006.000;

536/025.400 <--  
 US 2003102260 NCL 210/635.000; 210/656.000; 210/198.200; 435/006.000;  
 536/025.400 <--

AB Nonporous beads having an average diameter of about 0.5-100  $\mu$  are suitable for chromatog. separation of mixts. of polynucleotides when the beads comprise a nonporous particle which are coated with a polymer or which have substantially all surface substrate groups end-capped with a non-polar hydrocarbon or substituted hydrocarbon group. The beads provide efficient separation of polynucleotides using matched ion polynucleotide chromatog. Thus, DNA fragments were separated by using octadecyldimethylsilane-modified silica.

ST liq chromatog polynucleotide sepn; HPLC polynucleotide sepn silica polymer  
 IT HPLC  
 Liquid chromatography  
 PCR (polymerase chain reaction)  
 (liquid chromatog. media for polynucleotide separation)

IT DNA  
 Polynucleotides  
 RNA  
 RL: ANT (Analyte); ANST (Analytical study)  
 (liquid chromatog. media for polynucleotide separation)

IT Alcohols, analysis  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (liquid chromatog. media for polynucleotide separation)

IT Diatomite  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (liquid chromatog. media for polynucleotide separation)

IT Esters, analysis  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (liquid chromatog. media for polynucleotide separation)

IT Ethers, analysis  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (liquid chromatog. media for polynucleotide separation)

IT Nitriles, analysis  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (liquid chromatog. media for polynucleotide separation)

IT Polyamides, analysis  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (liquid chromatog. media for polynucleotide separation)

IT Polymers, analysis  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (liquid chromatog. media for polynucleotide separation)

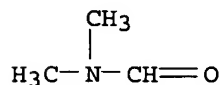
IT Polysaccharides, analysis  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (liquid chromatog. media for polynucleotide separation)

IT Polysiloxanes, analysis  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (liquid chromatog. media for polynucleotide separation)

IT Polyurethanes, analysis  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (liquid chromatog. media for polynucleotide separation)

IT 68-12-2, DMF, analysis 79-41-4D, Methacrylic acid, esters, polymers 409-21-2, Silicon carbide, analysis 1314-23-4, Zirconium oxide, analysis 1344-28-1, Alumina, analysis 5204-74-0, Triethylammonium acetate 7440-44-0, Carbon, analysis 7631-86-9, Silica, analysis 9002-88-4 9003-07-0 9003-53-6 9003-70-7, Divinylbenzene-styrene copolymer 9004-34-6, Cellulose, analysis 9016-00-6, Poly(Dimethyl siloxane) 13463-67-7, Titanium oxide, analysis 31900-57-9, Poly(Dimethyl siloxane) 45189-55-7 56285-72-4  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)

(liquid chromatog. media for polynucleotide separation)  
 IT 75-77-4, Trimethylchlorosilane, reactions 75-94-5, Vinyltrichlorosilane  
 1190-16-5, 3-Cyanopropylmethyldichlorosilane 18416-07-4,  
 DiOctyldichlorosilane 18643-08-8 215662-31-0  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (liquid chromatog. media for polynucleotide separation)  
 RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 RE  
 (1) Bonn; US 5585236 A 1996  
 (2) Huber; Analytical Biochemistry 1993, V212, P351 HCAPLUS  
 (3) Maa; Journal of Chromatography 1990, V508, P61 HCAPLUS  
 IT 68-12-2, DMF, analysis  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (liquid chromatog. media for polynucleotide separation)  
 RN 68-12-2 HCAPLUS  
 CN Formamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



L141 ANSWER 22 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1998:719307 HCAPLUS  
 DN 130:1995  
 ED Entered STN: 12 Nov 1998  
 TI Polynucleotide separations on nonporous polymer beads  
 IN Gjerde, Douglas T.; Haefele, Robert M.; Taylor, Paul D.  
 PA Transgenomic, Inc., USA  
 SO PCT Int. Appl., 45 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 IC ICM B01D015-00  
 ICS B01D015-08; C12Q001-68; C08F112-08; C07H019-00  
 CC 9-3 (Biochemical Methods)  
 FAN.CNT 34

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9848913	A1	19981105	WO 1998-US8388	19980423 <--
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
CA 2286350	AA	19981105	CA 1998-2286350	19980423 <--
CA 2286350	C	20050222		
AU 9871620	A1	19981124	AU 1998-71620	19980423 <--
AU 740718	B2	20011115		
EP 1017466	A1	20000712	EP 1998-918755	19980423 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
JP 2002506426	T2	20020226	JP 1998-547222	19980423 <--
US 6342161	B1	20020129	US 2000-481476	20000111 <--
US 6309549	B1	20011030	US 2000-493779	20000128 <--

	US 6355165	B1	20020312	US 2000-580302	20000526 <--
	US 2001032817	A1	20011025	US 2001-848385	20010502 <--
	US 6521123	B2	20030218		
PRAI	US 1997-44856P	P	19970425	<--	
	US 1997-59636P	P	19970923	<--	
	US 1997-62321P	P	19971017	<--	
	US 1997-63628P	P	19971027	<--	
	US 1997-67679P	P	19971205	<--	
	US 1998-77875P	A	19980313	<--	
	US 1998-58580	A	19980410	<--	
	US 1997-64428P	P	19971030	<--	
	US 1998-70467P	P	19980105	<--	
	US 1998-58337	B2	19980410	<--	
	WO 1998-US8388	W	19980423	<--	
	US 1998-89675P	P	19980617	<--	
	US 1998-129105	A2	19980804	<--	
	US 1998-99825P	P	19980910	<--	
	US 1998-103313P	P	19981006	<--	
	US 1998-183047	A3	19981030	<--	
	US 1998-183123	A1	19981030	<--	
	US 1999-119936P	P	19990212	<--	
	US 1999-295474	A3	19990419	<--	
	US 2000-493779	A3	20000128	<--	

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES	
WO 9848913	ICM	B01D015-00	
	ICS	B01D015-08; C12Q001-68; C08F112-08; C07H019-00	
WO 9848913	ECLA	B01D015/08; B01J020/26; B01J020/32; C12N015/10A2B; C12Q001/68A4	<--
US 6342161	NCL	210/635.000; 210/656.000; 435/006.000; 536/025.400	<--
US 6309549	NCL	210/635.000; 210/198.200; 210/656.000; 435/006.000; 536/025.400	<--
US 6355165	NCL	210/198.200; 210/175.000; 210/656.000	
	ECLA	B01D015/16B; B01D015/20; B01D015/36P; G01N030/30; G01N030/54; G01N030/96	<--
US 2001032817	NCL	210/198.200; 210/502.100; 210/635.000; 210/656.000; 435/006.000; 536/025.400	<--
AB	The present invention describes a chromatog. method for separating polynucleotides with improved separation and efficiency. The method uses nonporous polymeric beads having a non-reactive, non-polar surface, and made from a variety of different polymerizable monomers.		
ST	polynucleotide sepn nonporous polymer bead		
IT	Washing (acid; polynucleotide sepns. on nonporous polymer beads)		
IT	Functional groups (bromo; polynucleotide sepns. on nonporous polymer beads)		
IT	Cations (multivalent; polynucleotide sepns. on nonporous polymer beads)		
IT	Polymers, uses RL: NUU (Other use, unclassified); USES (Uses) (nonporous, beads; polynucleotide sepns. on nonporous polymer beads)		
IT	Solvents (organic; polynucleotide sepns. on nonporous polymer beads)		
IT	Hydrocarbons, uses RL: NUU (Other use, unclassified); USES (Uses) (polymers; polynucleotide sepns. on nonporous polymer beads)		
IT	Chromatography Cyano group Hydroxyl group		

Nitro group

PCR (polymerase chain reaction)

Solvents

(polynucleotide sepns. on nonporous polymer beads)

IT Alcohols, uses

Aldehydes, uses

Aromatic compounds

Hydrocarbons, uses

Nitriles, uses

Polyamides, uses

Polycarbonates, uses

Polyesters, uses

Polyolefins

Polyurethanes, uses

RL: NUU (Other use, unclassified); USES (Uses)

(polynucleotide sepns. on nonporous polymer beads)

IT DNA

RL: PEP (Physical, engineering or chemical process); PROC (Process)

(polynucleotide sepns. on nonporous polymer beads)

IT Polynucleotides

RL: PEP (Physical, engineering or chemical process); PROC (Process)

(polynucleotide sepns. on nonporous polymer beads)

IT RNA

RL: PEP (Physical, engineering or chemical process); PROC (Process)

(polynucleotide sepns. on nonporous polymer beads)

IT Alcohols, uses

RL: NUU (Other use, unclassified); USES (Uses)

(triethylammonium hexafluoroisopropyl; polynucleotide sepns. on nonporous polymer beads)

IT 64-19-7D, Acetic acid, trialkylamine, analysis 74-85-1D, Ethylene, fluorosubstituted 100-42-5, analysis 463-79-6D, Carbonic acid, trialkylamines, analysis

RL: ANT (Analyte); ANST (Analytical study)

(polynucleotide sepns. on nonporous polymer beads)

IT 68-12-2, Dimethylformamide, uses 98-83-9, uses 98-83-9D,  $\alpha$ -Methylstyrene, Alkyl substituted 100-42-5D, Styrene, Alkyl substituted 100-42-5D, Vinylbenzene, C1-6 alkyl 100-42-5D, Styrene, copolymers 106-99-0, 1,3-Butadiene, uses 1321-74-0, Divinylbenzene, uses 5204-74-0, Triethylammonium acetate 7664-38-2D, Phosphoric acid, trialkylamines, uses 7732-18-5, Water, uses 9002-89-5, Polyvinyl alcohol 9003-70-7, Poly(styrene-divinylbenzene) 10344-93-1D, Acrylate, compds., uses 18358-13-9D, Methacrylate, compds., uses

RL: NUU (Other use, unclassified); USES (Uses)

(polynucleotide sepns. on nonporous polymer beads)

RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Bonn; US 5585236 A 1996

(2) Huber; Analytical Biochemistry 1993, V212, P351 HCAPLUS

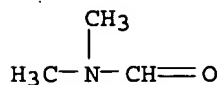
IT 68-12-2, Dimethylformamide, uses

RL: NUU (Other use, unclassified); USES (Uses)

(polynucleotide sepns. on nonporous polymer beads)

RN 68-12-2 HCAPLUS

CN Formamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



L141 ANSWER 23 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1997:18353 HCAPLUS

DN 126:43599

ED Entered STN: 13 Jan 1997

TI Buffer and method for evaluating optimal nucleic acid target sequence amplification conditions and applications thereof

IN Fouque, Brigitte; Teoule, Robert

PA Cis Bio International, Fr.; Fouque, Brigitte; Teoule, Robert

SO PCT Int. Appl., 65 pp.

CODEN: PIXXD2

DT Patent

LA French

IC ICM C12Q001-68

CC 3-1 (Biochemical Genetics)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9634115	A1	19961031	WO 1996-FR642	19960426 <--
	W: JP, US				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	FR 2733515	A1	19961031	FR 1995-5053	19950427 <--
	FR 2733515	B1	19970905		
PRAI	FR 1995-5053	A	19950427	<--	

CLASS

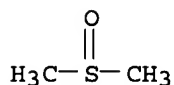
	PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
	WO 9634115	ICM	C12Q001-68
	FR 2733515	ECLA	C12Q001/68D4; C12Q001/68D6 <--

AB A buffer for facilitating nucleic acid denaturation while maintaining the structure of the enzymes used, and for significantly improving the performance of the **polymerase chain reaction** is described, as well as applications thereof, particularly in a method for amplifying nucleic acid target sequences using several temps. and in a method for evaluating optimal conditions to be implemented in said amplification method. The buffer comprises, in addition to standard amplification buffer components, a mixture of at least one isodestabilizing agent (I) and at least one denaturing agent (D), in concns. capable of reducing the m.p. (Tm) of the double-stranded nucleic acid target sequence, according to the formula:  $Tm(^{\circ}C) = 81.5 + 0.41(\%G+C) - \Delta TmI - 675/N + 16.6 \log M - \Delta TmD$ , wherein  $\Delta TmI = f[(\%G+C), (\text{molarity of I})]$ ,  $\Delta TmD = d(\% \text{ denaturing agent})$ , M = molarity of one or more monovalent cations present in the buffer, N = number of nucleotides, and d = efficiency coefficient of denaturing agent (D) for reducing at least the denaturation temperature (Td) of said double-stranded nucleic acid target sequence, while allowing for the proper performance of the primer extension enzyme **reaction**. Isodestabilizing agents which can be used include alkylammonium halides, zwitterions, and trialkylamine N-oxides. N,N,N-trimethylglycine is preferred. Useful denaturing agents include glycerol, DMSO, DMF, formamide, ureas, polyols, and detergents. Particularly preferred for amplification buffers are the combinations N,N,N-trimethylglycine and DMSO, or N,N,N-trimethylglycine and DMSO and glycerol. Determination of optimal PCR conditions in the presence of such agents and the effects of these agents in PCR buffers were demonstrated.

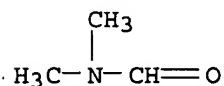
ST nucleic acid amplification trimethylglycine DMSO glycerol; PCR  
LCR buffer trimethylglycine DMSO glycerol

IT **Nucleic acid amplification (method)**  
(DNA, ligase chain reaction; isodestabilizing and denaturing agents-containing buffer and method for evaluating optimal nucleic acid

- target sequence amplification conditions and applications thereof)
- IT Denaturants  
 Nucleic acid amplification (method)  
 PCR (polymerase chain reaction)  
 (isodestabilizing and denaturing agents-containing buffer and method for evaluating optimal nucleic acid target sequence amplification conditions and applications thereof)
- IT Detergents  
 Zwitterions  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (isodestabilizing and denaturing agents-containing buffer and method for evaluating optimal nucleic acid target sequence amplification conditions and applications thereof)
- IT Alcohols, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (polyhydric; isodestabilizing and denaturing agents-containing buffer and method for evaluating optimal nucleic acid target sequence amplification conditions and applications thereof)
- IT Amine oxides  
 Amine oxides  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (tertiary; isodestabilizing and denaturing agents-containing buffer and method for evaluating optimal nucleic acid target sequence amplification conditions and applications thereof)
- IT Quaternary ammonium compounds, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (tetraalkyl, halides; isodestabilizing and denaturing agents-containing buffer and method for evaluating optimal nucleic acid target sequence amplification conditions and applications thereof)
- IT 56-81-5, 1,2,3-Propanetriol, uses 57-13-6, Urea, uses 67-68-5, uses 68-12-2, uses 75-12-7, Formamide, uses 107-43-7  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (isodestabilizing and denaturing agents-containing buffer and method for evaluating optimal nucleic acid target sequence amplification conditions and applications thereof)
- IT 67-68-5, uses 68-12-2, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (isodestabilizing and denaturing agents-containing buffer and method for evaluating optimal nucleic acid target sequence amplification conditions and applications thereof)
- RN 67-68-5 HCAPLUS  
 CN Methane, sulfinylbis- (9CI) (CA INDEX NAME)



- RN 68-12-2 HCAPLUS  
 CN Formamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)





AN 1996:284836 HCAPLUS  
 DN 124:334845  
 ED Entered STN: 14 May 1996  
 TI Biotinylated and fluorescein-labeled oligonucleotide probes and primers for HCV, HIV, and HTLV detection in blood samples or for virus RNA extraction  
 IN Petrik, Juraj; Allain, Jean-Pierre; Pearson, Gavin John Mark  
 PA Lynxvale Ltd., UK  
 SO PCT Int. Appl., 21 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 IC ICM C12Q001-68  
 ICS C12Q001-70  
 CC 3-1 (Biochemical Genetics)  
 Section cross-reference(s): 9, 10, 14

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9603528	A2	19960208	WO 1995-GB1768	19950726 <--
	WO 9603528	A3	19960418		
	W:	AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT			
	RW:	KE, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG			
	AU 9531183	A1	19960222	AU 1995-31183	19950726 <--
	EP 775216	A2	19970528	EP 1995-927015	19950726 <--
	EP 775216	B1	20020403		
	R:	DE, FR, GB			
PRAI	GB 1994-15129	A	19940727		<--
	WO 1995-GB1768	W	19950726		<--

# CLASS

	PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
	WO 9603528	ICM	C12Q001-68
		ICS	C12Q001-70
	WO 9603528	ECLA	B01L003/00C2D; C12Q001/68A4; C12Q001/70B; C12Q001/70B6A; C12Q001/70B2B
AB	Oligonucleotide probes for HCV, HIV 1 and HIV 2, and HTLV I and II RNA detection in blood samples and for virus RNA extraction Use of DNA cutting enzyme, annealing with labeled primer, multi-well plates, and DMSO or DMF for elution is also included.		
ST	oligonucleotide labeled virus HCV HIV HTLV; RNA viral extn HCV HIV HTLV; blood diagnosis HCV HIV HTLV virus		
IT	Blood analysis		
	Polymerase chain reaction (biotinylated and fluorescein-labeled oligonucleotide probes and primers for HCV, HIV, and HTLV detection in blood samples or for virus RNA extraction)		
IT	Ribonucleic acids, viral		
	RL: ANT (Analyte); PUR (Purification or recovery); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses) (biotinylated and fluorescein-labeled oligonucleotide probes and primers for HCV, HIV, and HTLV detection in blood samples or for virus RNA extraction)		
IT	Annealing		

- (with labeled primer; biotinylated and fluorescein-labeled oligonucleotide probes and primers for HCV, HIV, and HTLV detection in blood samples or for virus RNA extraction)
- IT Virus, animal  
(hepatitis C, biotinylated and fluorescein-labeled oligonucleotide probes and primers for HCV, HIV, and HTLV detection in blood samples or for virus RNA extraction)
- IT Virus, animal  
(human T-cell leukemia type I, biotinylated and fluorescein-labeled oligonucleotide probes and primers for HCV, HIV, and HTLV detection in blood samples or for virus RNA extraction)
- IT Virus, animal  
(human T-cell leukemia type II, biotinylated and fluorescein-labeled oligonucleotide probes and primers for HCV, HIV, and HTLV detection in blood samples or for virus RNA extraction)
- IT Virus, animal  
(human immunodeficiency 1, biotinylated and fluorescein-labeled oligonucleotide probes and primers for HCV, HIV, and HTLV detection in blood samples or for virus RNA extraction)
- IT Virus, animal  
(human immunodeficiency 2, biotinylated and fluorescein-labeled oligonucleotide probes and primers for HCV, HIV, and HTLV detection in blood samples or for virus RNA extraction)
- IT Nucleotides, biological studies  
RL: ARG (Analytical reagent use); ARU (Analytical role, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(oligo-, labeled, biotinylated and fluorescein-labeled oligonucleotide probes and primers for HCV, HIV, and HTLV detection in blood samples or for virus RNA extraction)
- IT 176304-89-5DP, biotinylated derivs. 176304-90-8DP, fluorescein-labeled derivs.  
RL: ANT (Analyte); PUR (Purification or recovery); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)  
(PCR primer; biotinylated and fluorescein-labeled oligonucleotide probes and primers for HCV, HIV, and HTLV detection in blood samples or for virus RNA extraction)
- IT 58-85-5D, Biotin, oligonucleotide conjugates 2321-07-5D, Fluorescein, oligonucleotide conjugates  
RL: ARG (Analytical reagent use); ARU (Analytical role, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(biotinylated and fluorescein-labeled oligonucleotide probes and primers for HCV, HIV, and HTLV detection in blood samples or for virus RNA extraction)
- IT 9003-98-9, DNase  
RL: NUU (Other use, unclassified); USES (Uses)  
(biotinylated and fluorescein-labeled oligonucleotide probes and primers for HCV, HIV, and HTLV detection in blood samples or for virus RNA extraction)
- IT 176304-91-9P  
RL: ANT (Analyte); PUR (Purification or recovery); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)  
(dA40, probe for HCV virus; biotinylated and fluorescein-labeled oligonucleotide probes and primers for HCV, HIV, and HTLV detection in blood samples or for virus RNA extraction)
- IT 67-68-5, DMSO, uses 68-12-2, DMF, uses  
RL: NUU (Other use, unclassified); USES (Uses)

(elution; biotinylated and fluorescein-labeled oligonucleotide probes and primers for HCV, HIV, and HTLV detection in blood samples or for virus RNA extraction)

IT 55508-40-2P  
 RL: ANT (Analyte); PUR (Purification or recovery); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (probe for HCV virus; biotinylated and fluorescein-labeled oligonucleotide probes and primers for HCV, HIV, and HTLV detection in blood samples or for virus RNA extraction)

IT 127712-01-0P  
 RL: ANT (Analyte); PUR (Purification or recovery); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (probe for HIV 1 and HIV 2; biotinylated and fluorescein-labeled oligonucleotide probes and primers for HCV, HIV, and HTLV detection in blood samples or for virus RNA extraction)

IT 127711-91-5P  
 RL: ANT (Analyte); PUR (Purification or recovery); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (probe for HTLV I and HTLV II; biotinylated and fluorescein-labeled oligonucleotide probes and primers for HCV, HIV, and HTLV detection in blood samples or for virus RNA extraction)

IT 24937-83-5, Poly(A)  
 RL: ARG (Analytical reagent use); ARU (Analytical role, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
 (probe for hepatitis C virus; biotinylated and fluorescein-labeled oligonucleotide probes and primers for HCV, HIV, and HTLV detection in blood samples or for virus RNA extraction)

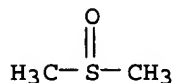
IT 9003-98-9, DNase  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (biotinylated and fluorescein-labeled oligonucleotide probes and primers for HCV, HIV, and HTLV detection in blood samples or for virus RNA extraction)

RN 9003-98-9 HCAPLUS  
 CN Nuclease, deoxyribo- (9CI) (CA INDEX NAME)

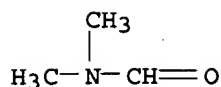
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IT 67-68-5, DMSO, uses 68-12-2, DMF, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (elution; biotinylated and fluorescein-labeled oligonucleotide probes and primers for HCV, HIV, and HTLV detection in blood samples or for virus RNA extraction)

RN 67-68-5 HCAPLUS  
 CN Methane, sulfinylbis- (9CI) (CA INDEX NAME)



RN 68-12-2 HCAPLUS  
 CN Formamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



L141 ANSWER 25 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1994:263055 HCAPLUS

DN 120:263055

ED Entered STN: 28 May 1994

TI Nucleic acid sequence amplification without temperature cycling

IN Mcdonough, Sherrol H.; Kacian, Daniel L.; Dattagupta, Nanibhushan;  
Mcallister, Diane L.; Hammond, Philip W.; Ryder, Thomas B.

PA Gen-Probe Incorp., USA

SO PCT Int. Appl., 48 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C07H021-04

ICS C12P019-34; C12Q001-68

CC 3-1 (Biochemical Genetics)

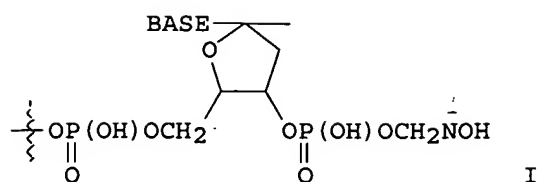
FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9403472	A1	19940217	WO 1993-US7138	19930728 <--
	W: AU, CA, JP, KR, NO				
	JP 07509368	T2	19951019	JP 1994-505433	19930728 <--
	AU 670116	B2	19960704	AU 1993-47920	19930728 <--
	AU 9347920	A1	19940303		
	EP 587298	A2	19940316	EP 1993-306169	19930804 <--
	EP 587298	B1	20001108		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
	EP 978570	A2	20000209	EP 1999-121906	19930804 <--
	EP 978570	A3	20000412		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE				
	AT 197479	E	20001111	AT 1993-306169	19930804 <--
	NO 9500381	A	19950403	NO 1995-381	19950202 <--
	AU 9668027	A1	19961219	AU 1996-68027	19961004 <--
	AU 700253	B2	19981224		
	JP 2004194662	A2	20040715	JP 2003-433721	20031226 <--
PRAI	US 1992-925405	A	19920804	<--	
	JP 1994-505433	A3	19930728	<--	
	WO 1993-US7138	W	19930728	<--	
	EP 1993-306169	A3	19930804	<--	

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 9403472	ICM	C07H021-04
	ICS	C12P019-34; C12Q001-68
EP 587298	ECLA	C07K014/35; C12N015/10D; C12Q001/68D2A; C12Q001/68D8; C12Q001/68M10B; C12Q001/70B2B <--
EP 978570	ECLA	C07K014/35; C12N015/10D; C12Q001/68D8; C12Q001/68D2A; C12Q001/68M10B; C12Q001/70B2B <--
JP 2004194662	FTERM	4B024/AA11; 4B024/AA20; 4B024/CA04; 4B024/CA09; 4B024/HA08; 4B024/HA14; 4B063/QA18; 4B063/QA19; 4B063/QQ06; 4B063/QQ52; 4B063/QR08; 4B063/QR55; 4B063/QR62; 4B063/QS25; 4B063/QX07 <--

GI



- AB A method for enzymic amplification of target nucleic acid sequence under conditions of substantially constant temperature, ionic strength, and pH is described. Multiple RNA copies of the target sequence are used to generate addnl. copies using a mixture of 3'-blocked and unblocked primers optionally in combination with promoter-primers to initiate DNA and RNA synthesis, preferably with a lowering of non-specific product formation. One of the blocking or modifying agents is an alkane-diol (I). The invention is useful for generating copies of a nucleic acid target sequence for purposes that include assays to quantitate specific nucleic acid sequences in clin., environmental, forensic and similar samples, cloning and generating probes. The method uses an RNA intermediate that is generated using an RNA **polymerase** and promoter-containing primers that is then converted to a DNA with a reverse transcriptase; the RNA/DNA hybrid is broken up by treatment with RNase H. The method was demonstrated and optimized using Mycobacterium rRNA.
- ST nucleic acid amplification enzymic isothermal; RNase H isothermal nucleic acid amplification; RNA **polymerase** isothermal nucleic acid amplification; reverse transcriptase isothermal nucleic acid amplification
- IT Mycobacterium  
Mycobacterium tuberculosis  
(detection of, isothermal nucleic acid amplification for, primers derived from rRNA for)
- IT Glycols, compounds  
Nucleotides, compounds  
Phosphorothioates  
RL: BIOL (Biological study)  
(oligonucleotides 3'-blocked with, as promoter primers in isothermal nucleic acid amplification via RNA intermediate, RNA **polymerase** and reverse transcriptase in)
- IT Genetic methods  
(NASBA (nucleic acid sequence-based amplification), isothermal, amplification via RNA intermediate, RNA **polymerase** and reverse transcriptase in)
- IT Nucleotides, polymers  
RL: BIOL (Biological study)  
(oligo-, 3'-blocked, as promoter primers in isothermal nucleic acid amplification via RNA intermediate, RNA **polymerase** and reverse transcriptase in)
- IT Genetic element  
RL: BIOL (Biological study)  
(promoter, 3'-blocked oligonucleotides as, in isothermal nucleic acid amplification via RNA intermediate, RNA **polymerase** and reverse transcriptase in)
- IT 154655-70-6D, 3'-oligonucleotide conjugates 154655-71-7D, 3'-oligonucleotide conjugates 154655-72-8D, 3'-oligonucleotide conjugates 154655-73-9D, 3'-oligonucleotide conjugates  
RL: USES (Uses)  
(as primer in isothermal nucleic acid amplification via RNA intermediate, RNA **polymerase** and reverse transcriptase in,

detection of Mycobacterium in relation to)

IT 153157-32-5 153157-36-9  
 RL: USES (Uses)  
 (as primer in isothermal nucleic acid amplification via RNA intermediate, RNA **polymerase** and reverse transcriptase in, detection of Mycobacterium tuberculosis in relation to)

IT 9068-38-6, Reverse transcriptase  
 RL: USES (Uses)  
 (in isothermal nucleic acid amplification via RNA intermediate, RNA **polymerase** and RNase H in)

IT 56-81-5, Glycerol, uses 67-68-5, DMSO, uses 68-12-2, Dimethylformamide, uses 107-21-1, Ethylene glycol, uses 7440-66-6, Zinc, biological studies 9012-90-2, DNA **polymerase** 9050-76-4, Ribonuclease H  
 RL: USES (Uses)  
 (in isothermal nucleic acid amplification via RNA intermediate, RNA **polymerase** and reverse transcriptase in)

IT 73-03-0, Cordycepin  
 RL: USES (Uses)  
 (oligonucleotides 3'-blocked with, as promoter primers in isothermal nucleic acid amplification via RNA intermediate, RNA **polymerase** and reverse transcriptase in)

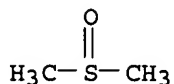
IT 9068-38-6, Reverse transcriptase  
 RL: USES (Uses)  
 (in isothermal nucleic acid amplification via RNA intermediate, RNA **polymerase** and RNase H in)

RN 9068-38-6 HCAPLUS  
 CN Nucleotidyltransferase, deoxyribonucleate, RNA-dependent (9CI) (CA INDEX NAME)

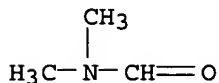
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 67-68-5, DMSO, uses 68-12-2, Dimethylformamide, uses 9012-90-2, DNA **polymerase**  
 RL: USES (Uses)  
 (in isothermal nucleic acid amplification via RNA intermediate, RNA **polymerase** and reverse transcriptase in)

RN 67-68-5 HCAPLUS  
 CN Methane, sulfinylbis- (9CI) (CA INDEX NAME)



RN 68-12-2 HCAPLUS  
 CN Formamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



RN 9012-90-2 HCAPLUS  
 CN Nucleotidyltransferase, deoxyribonucleate (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

L141 ANSWER 26 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN

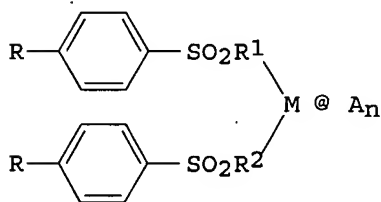
AN 1993:254538 HCAPLUS  
 DN 118:254538  
 ED Entered STN: 26 Jun 1993  
 TI Sulfonyl derivatives  
 IN Takayanagi, Takeo  
 PA USA  
 SO Eur. Pat. Appl., 23 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA English  
 IC ICM C07C335-42  
 ICS A61K031-63; C07D203-12; C07F003-02; C07F001-08; C07C311-48;  
 C07C309-76; C07C311-53; C07C309-88; C07F003-10  
 CC 25-12 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
 Section cross-reference(s): 26, 32, 33, 63  
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 493642	A1	19920708	EP 1991-100035	19910102 <--
R: CH, FR, GB, IT, LI, SE				
PRAI EP 1991-100035		19910102 <--		

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
EP 493642	ICM	C07C335-42
	ICS	A61K031-63; C07D203-12; C07F003-02; C07F001-08; C07C311-48; C07C309-76; C07C311-53; C07C309-88; C07F003-10

OS MARPAT 118:254538  
 GI



AB The present invention consists of novel sulfonyl derivs. I [R = NR'R'', R', R'' = H, COCHR4, COCR43, SO2Me, CO2Et, CH2CH2R4, CONHCH2CH2R4, CONHCH2CO2Et, CH2CH2OCONH2; R4 = Cl, NMeCHO, ethylenimino, MeNOH, HOCH2CH2CONH, EtCONH, HONH, MeNH, HONCONHOH; R1, R2 = NMeCHO, ethylenimino, 2-hydroxy-4-pyrimidinylamino, 6-mercaptapurinyl, 5-fluorouracilyl, prednisolyl, salicyl, hydrazidyl, 1-allyl-2-thiouracilyl, hydroxylamino, isoamidyl, OH, SH, F, iodo, CCl3, MeO, EtO, CH2:CHO, PhO, benzhydryloxy, aminoethyl, ether group forming oxonium salt of ClCH2OCH2Cl, MeOCH2CH2OMe, ClCH2CH2OCH2CH2Cl, BuOMe, Ph2O, (CH2:CHCH2)2O, (CH2:CH)2O, Bu2O, PhOMe, MeOCHCl2, ClCH2OEt, HOCH2CH2OCH2CH2Cl, ClCH2CHClEt, THF; M = metal; R also = linear, branched, cyclic C1-6 alkyl, halo, Hg:NR5, R5 = C1-6 alkyl; n = 0] and complexes I (A = bio. active substance, n = 1-4) and the process for preparing I (A = bio. active substance). Thus, 4-(EtOCONH)C6H4SO2Cl was treated with CH2:CHCH2NHCSNH2 in pyridine at 30° overnight to give 4-(EtOCONH)C6H4SO2NHCSNHCH2CH:CH2 as an oil which was treated with ClCH2CH2NHCH2OH in MeOCH2CH2OH and a concentrate Mg salt solution to give I (R = NR'R'', R' = H, R'' = EtO2C, R1 = R2 = NHCSNHCH2CH:CH2, M = Mg, A =

ClCH<sub>2</sub>CH<sub>2</sub>NHOH, n = 1).

ST aminoarylsulfonyl prepn complexation bio active substance; sulfonyl compd  
aminoaryl prepn complexation; bio active substance sulfonyl compd complex

IT Androgens  
Estrogens  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(as pharmaceutical agents in sulfonyl complex derivs.)

IT Bromides, reactions  
Carbonates, reactions  
Chlorides, reactions  
Fluorides, reactions  
Hydroxides  
Iodides, reactions  
Sulfates, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, in synthesis of bis(aminoarylsulfonyl) compds.)

IT Agglutinins and Lectins  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(complexes, as pharmaceutical agent in sulfonyl derivative)

IT 109-99-9D, metal-containing bis(aminoarylsulfonyl) compound complexes  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(d)

IT 134380-82-8P 134380-83-9P 134380-85-1P 134380-87-3P 134380-89-5P  
134380-90-8P 141219-02-5P 144207-82-9DP, magnesium complexes, compds.  
with pharmaceutical agents  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and complexation of, with biol. active compds.)

IT 144207-84-1P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and complexation of, with glycine copper derivative)

IT 13945-59-0P 22819-27-8P 134380-84-0P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(preparation and reaction of, in synthesis of bis(aminoarylsulfonyl)  
compds.)

IT 50-18-0P 50-24-8DP, metal-containing bis(aminoarylsulfonyl) compound  
complexes  
50-44-2DP, compds. with magnesium benzenesulfonamides or sulfonyl derivative  
complexes 50-44-2DP, metal-containing bis(aminoarylsulfonyl) compound  
complexes 51-05-8DP, metal-containing bis(aminoarylsulfonyl) compound  
complexes 51-21-8DP, compds. with magnesium benzenesulfonamide or  
sulfonyl derivative complexes 52-24-4DP, metal-containing  
bis(aminoarylsulfonyl)  
compound complexes 55-18-5DP, N-Nitrosodiethylamine, metal-containing  
bis(aminoarylsulfonyl) compound complexes 55-86-7DP, Nitrogen mustard,  
metal-containing bis(aminoarylsulfonyl) compound complexes 55-98-1DP,  
Myleran,  
metal-containing bis(aminoarylsulfonyl) compound complexes 56-40-6DP,  
Glycine,  
metal-containing bis(aminoarylsulfonyl) compound complexes 56-75-7DP,  
Chloramphenicol, metal-containing bis(aminoarylsulfonyl) compound complexes  
56-86-0DP, L-Glutamic acid, metal-containing bis(aminoarylsulfonyl) compound  
complexes 57-92-1DP, Streptomycin, metal-containing bis(aminoarylsulfonyl)  
compound complexes 59-67-6DP, Nicotinic acid, metal-containing  
bis(aminoarylsulfonyl) compound complexes 59-85-8DP, metal-containing  
bis(aminoarylsulfonyl) compound complexes 61-73-4DP, Methylene blue,  
metal-containing bis(aminoarylsulfonyl) compound complexes 62-75-9DP,  
N-Nitrosodimethylamine, metal-containing bis(aminoarylsulfonyl) compound  
complexes 64-86-8DP, metal-containing bis(aminoarylsulfonyl) compound  
complexes 85-66-5DP, metal-containing bis(aminoarylsulfonyl) compound



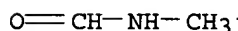
complexes 119-36-8DP, Salicylic acid methyl ester, metal-containing bis(aminoarylsulfonyl) compound complexes 123-39-7DP, N-Methylformamide, metal-containing bis(aminoarylsulfonyl) compound complexes 147-24-0DP, metal-containing bis(aminoarylsulfonyl) compound complexes 147-85-3DP, Proline, metal-containing bis(aminoarylsulfonyl) compound complexes 150-13-0DP, 4-Aminobenzoic acid, metal-containing bis(aminoarylsulfonyl) compound complexes 612-30-6DP, compound with mercury-magnesium 4-aminomethylbenzenesulfonamide complexes 612-30-6DP, compds. with mercury-magnesium-copper glycine complexes 627-42-9DP, compds. with magnesium benzenesulfonamide or sulfonyl derivative complexes 627-42-9DP, 2-Chloroethyl methyl ether, metal-containing bis(aminoarylsulfonyl) compound complexes 636-61-3DP, metal-containing bis(aminoarylsulfonyl) compound complexes 694-03-1DP, metal-containing bis(aminoarylsulfonyl) compound complexes 865-21-4DP, Vinblastin, metal-containing bis(aminoarylsulfonyl) compound complexes 1406-05-9DP, Penicillin, metal-containing bis(aminoarylsulfonyl) compound complexes 2114-18-3DP, compds. with magnesium benzenesulfonamide or sulfonyl derivative complexes 3009-34-5DP, metal-containing bis(aminoarylsulfonyl) compound complexes 3416-24-8DP, metal-containing bis(aminoarylsulfonyl) compound complexes 3711-49-7DP, metal-containing bis(aminoarylsulfonyl) compound complexes 4239-06-9DP, compds. with magnesium benzenesulfonamide or sulfonyl derivative complexes 7439-95-4DP, Magnesium, benzenesulfonamide or sulfonyl derivative complexes, compds. with pharmaceutical agents 7439-97-6DP, Mercury, -magnesium, 4-aminomethylbenzenesulfonamide complexes, compds. with copper glycine complex 7440-50-8DP, Copper, benzenesulfonamide or sulfonyl derivative complexes, compds. with pharmaceutical agents 7535-00-4DP, metal-containing bis(aminoarylsulfonyl) compound complexes 9000-92-4DP, Diastase, metal-containing bis(aminoarylsulfonyl) compound complexes 9001-12-1DP, Collagenase, metal-containing bis(aminoarylsulfonyl) compound complexes 9001-54-1DP, Hyaluronidase, compds. with magnesium benzenesulfonamides or sulfonyl derivative complexes 9002-60-2DP, Corticotropin, metal-containing bis(aminoarylsulfonyl) compound complexes 9015-68-3DP, Asparaginase, metal-containing bis(aminoarylsulfonyl) compound complexes 9032-75-1DP, Polygalacturonase, compds. with magnesium benzenesulfonamide or sulfonyl derivative complexes 9066-59-5DP, Lysozyme chloride, metal-containing bis(aminoarylsulfonyl) compound complexes 9068-67-1DP, Sulfatase, metal-containing bis(aminoarylsulfonyl) compound complexes 13479-54-4DP, compound with mercury-magnesium, 4-aminomethylbenzenesulfonamide complexes 14307-02-9DP, metal-containing bis(aminoarylsulfonyl) compound complexes 21293-29-8DP, Absciscic acid, metal-containing bis(aminoarylsulfonyl) compound complexes 24589-68-2DP, metal-containing bis(aminoarylsulfonyl) compound complexes 27134-26-5DP, metal-containing bis(aminoarylsulfonyl) compound complexes 36368-43-1DP, compds. with magnesium benzenesulfonamide or sulfonyl derivative complexes 45721-65-1DP, metal-containing bis(aminoarylsulfonyl) compound complexes 65589-70-0DP, Acriflavine, metal-containing bis(aminoarylsulfonyl) compound complexes 110238-63-6DP, compds. with magnesium benzenesulfonamides or sulfonyl derivative complexes 134380-82-8DP, compds. with magnesium complexes, compds. with pharmaceutical agents 134380-83-9DP, compds. with magnesium complexes, compds. with pharmaceutical agents 134380-85-1DP, compds. with magnesium complexes, compds. with pharmaceutical agents 134380-87-3DP, compds. with magnesium complexes, compds. with pharmaceutical agents 134380-89-5DP, compds. with copper complexes, compds. with pharmaceutical agents 134380-90-8DP, compds. with magnesium complexes, compds. with pharmaceutical agents 134380-93-1DP, compds. with magnesium benzenesulfonamide or sulfonyl derivative complexes 134380-96-4DP, compds. with magnesium benzenesulfonamide or sulfonyl derivative complexes 141218-22-6DP, compds. with magnesium benzenesulfonamides or sulfonyl derivative complexes 141218-27-1DP, compds. with magnesium benzenesulfonamide or sulfonyl derivative complexes 141218-27-1DP,

metal-containing bis(aminoarylsulfonyl) compound complexes 141218-29-3DP,  
 metal-containing bis(aminoarylsulfonyl) compound complexes 141218-30-6DP,  
 compds. with magnesium benzenesulfonamide or sulfonyl derivative complexes  
 141219-02-5DP, compds. with magnesium complexes, compds. with  
 pharmaceutical agents 144207-79-4DP, compds. with copper  
 benzenesulfonamide or sulfonyl derivative complexes 144207-80-7DP, compds.  
 with copper benzenesulfonamide or sulfonyl derivative complexes  
 144207-81-8DP, compds. with magnesium benzenesulfonamide or sulfonyl  
 derivative complexes 144207-83-0P 144207-86-3DP, metal-containing  
 bis(aminoarylsulfonyl) compound complexes 144207-87-4DP, metal-containing  
 bis(aminoarylsulfonyl) compound complexes 144207-88-5DP, metal-containing  
 bis(aminoarylsulfonyl) compound complexes 144207-89-6DP, metal-containing  
 bis(aminoarylsulfonyl) compound complexes 144207-90-9DP, metal-containing  
 bis(aminoarylsulfonyl) compound complexes 144207-91-0DP, metal-containing  
 bis(aminoarylsulfonyl) compound complexes 144207-92-1DP, metal-containing  
 bis(aminoarylsulfonyl) compound complexes 144207-93-2DP, metal-containing  
 bis(aminoarylsulfonyl) compound complexes 144230-82-0DP, compds. with  
 magnesium benzenesulfonamide or sulfonyl derivative complexes 144230-83-1DP,  
 metal-containing bis(aminoarylsulfonyl) compound complexes  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)

IT 51-79-6 100-66-3, Anisole, reactions 101-84-8, Diphenyl ether  
 107-30-2, Chloromethyl methyl ether 107-99-3, 2-Dimethylaminoethyl  
 chloride 109-57-9, 1-Allyl-2-thiourea 109-93-3, Divinyl ether  
 110-71-4, 1,2-Dimethoxyethane 111-44-4, Bis(2-Chloroethyl) ether  
 121-60-8, 4-Acetamidobenzenesulfonyl chloride 138-37-4, Homosulfamine  
 142-96-1, Dibutyl ether 151-56-4, Ethyleneimine, reactions 515-64-0,  
 Sulfisomidine 542-88-1, Bis(Chloromethyl) ether 557-40-4, Diallyl  
 ether 628-28-4, Butyl methyl ether 628-89-7, 2-(2-Chloroethoxy)ethanol  
 936-02-7, Salicyl hydrazide 3188-13-4, Chloromethyl ethyl ether  
 7439-89-6D, Iron, salts 7439-97-6D, Mercury, salts 7440-02-0D, Nickel,  
 salts 7440-05-3D, Palladium, salts 7440-06-4D, Platinum, salts  
 7440-09-7D, Potassium, salts 7440-23-5D, Sodium, salts 7440-39-3D,  
 Barium, salts 7440-46-2, Cesium, reactions 7440-50-8D, Copper, salts  
 7440-57-5D, Gold, salts 7440-66-6D, Zinc, salts 7440-70-2D, Calcium,  
 salts 21208-62-8 21926-53-4 144207-85-2  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, in synthesis of bis(aminoarylsulfonyl) compds.)

IT 123-39-7DP, N-Methylformamide, metal-containing bis(aminoarylsulfonyl)  
 compound complexes 9032-75-1DP, Polygalacturonase, compds. with  
 magnesium benzenesulfonamide or sulfonyl derivative complexes  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)

RN 123-39-7 HCAPLUS  
 CN Formamide, N-methyl- (8CI, 9CI) (CA INDEX NAME)



RN 9032-75-1 HCAPLUS  
 CN Polygalacturonase (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

L141 ANSWER 27 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1989:473709 HCAPLUS  
 DN 111:73709  
 ED Entered STN: 03 Sep 1989  
 TI Influence of organic-aqueous media in the DNase activity of

micrococcal endonuclease

AU Alcantara, A. R.; Garcia-Blanco, F.; Heras, A. M.; Sinisterra, J. V.;  
Ballesteros, A.

CS Org. Chem. Dep., Univ. Cordoba, Cordoba, 14004, Spain

SO Journal of Molecular Catalysis (1989), 52(3), 323-36  
CODEN: JMCADS; ISSN: 0304-5102

DT Journal

LA English

CC 7-3 (Enzymes)

AB The hydrolysis of heat-denatured DNA by native micrococcal nuclease in  
several aqueous-organic media has been carried out. DMSO, THF, acetonitrile,  
N,N-dimethylformamide, and MeOH at 2% and 5% (volume/volume) were used. In  
order to explain the influence of these solvents on DNA and enzyme, ORD  
measurements and thermal perturbation difference spectra were gathered.  
The effect of the aqueous-organic media on the heat-denatured DNA structure  
cannot explain the degree of hydrolytic activity observed, but the catalytic  
activity of the enzyme in these media is related to the alteration of the  
secondary structure of the enzyme. The effect of solvents and temperature on  
the active site tyrosines 113 and 85 is discussed..

ST org solvent micrococcal nuclease activity conformation

IT Enzyme functional sites  
(of micrococcal endonuclease, of Staphylococcus aureus, organic solvents  
effect on microenvironment of tyrosine in)

IT Solvent effect  
(organic, micrococcal endonuclease conformation and DNase  
activity response to)

IT Conformation and Conformers  
(secondary, of micrococcal nuclease, organic solvents effect on)

IT 67-56-1, Methanol, biological studies 67-68-5, Dimethyl  
sulfoxide, biological studies 68-12-2, N,N-Dimethylformamide,  
biological studies 75-05-8, Acetonitrile, biological studies 109-99-9,  
Tetrahydrofuran, biological studies  
RL: BIOL (Biological study)  
(micrococcal endonuclease DNase activity and structure  
response to aqueous).

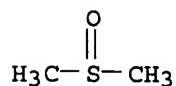
IT 60-18-4, Tyrosine, properties  
RL: PRP (Properties)  
(of micrococcal endonuclease active site positions 85 and 113, organic  
solvents effect on microenvironment of)

IT 9013-53-0, Micrococcal endonuclease  
RL: BIOL (Biological study)  
(organic solvents effect on conformation and DNase activity of,  
of Staphylococcus aureus)

IT 67-68-5, Dimethyl sulfoxide, biological studies 68-12-2,  
N,N-Dimethylformamide, biological studies  
RL: BIOL (Biological study)  
(micrococcal endonuclease DNase activity and structure  
response to aqueous)

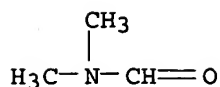
RN 67-68-5 HCAPLUS

CN Methane, sulfinylbis- (9CI) (CA INDEX NAME)

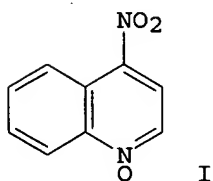


RN 68-12-2 HCAPLUS

CN Formamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



L141 ANSWER 28 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1983:138514 HCAPLUS  
 DN 98:138514  
 ED Entered STN: 12 May 1984  
 TI DNA polymerase deficient assay  
 AU Rosenkranz, Herbert S.; Hyman, Julie; Leifer, Zev  
 CS Dep. Microbiol., New York Med. Coll., Valhalla, NY, USA  
 SO Progress in Mutation Research (1981), 1(Eval. Short-Term Tests  
 Carcinog.: Rep. Int. Collab. Program), 210-18  
 CODEN: PMRSDJ; ISSN: 0731-2849  
 DT Journal  
 LA English  
 CC 4-1 (Toxicology)  
 GI



AB Inhibition of DNA polymerase-deficient Escherichia coli strains (W3110 and P3478) was used as a parameter in the determination of mutagenicity of 42 chemical compds. by using the disk diffusion assay (Slater, E. E., et al., 1971) and the modified liquid suspension assay (McCoy, E. C., et al., 1979). 4-nitroquinoline N-oxide (I) [56-57-5], β-propiolactone [57-57-8] and o-toluidine [95-53-4] were strongly mutagenic when determined by the disk diffusion method. dinitrosopentamethylene tetramine [101-25-7], methylazoxymethanol acetate [592-62-1] And epichlorohydrin [106-89-8] were strongly mutagenic in the presence or absence of S9 mix., I, DL-ethionine [67-21-0] and safrole [94-59-7] were strongly mutagenic in the presence of S9 mix and 3-methyl-4-nitroquinoline N-oxide [14073-00-8], 2-naphthylamine [91-59-8], isopropyl N-(3-chlorophenyl)carbamate [101-21-3], azoxybenzene [495-48-7], hydrazine [302-01-2], 4,4'-methylenebis(2-chloroaniline) [101-14-4] and auramine [2465-27-2] were strongly mutagenic in the absence of S9 mix. when determined by the liquid suspension assay.

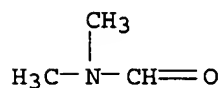
ST Escherichia inhibition chem mutagenicity assay  
 IT Escherichia coli  
 (DNA polymerase-deficient strains of, inhibition of, in chemical mutagenicity assay)  
 IT Mutagens  
 (DNA polymerase-deficient Escherichia coli inhibition assay for)  
 IT Carcinogens  
 (mutagenicity of, DNA polymerase-deficient

Escherichia coli inhibition assay for)

IT 50-18-0 50-32-8, biological studies 50-81-7, biological studies  
 51-79-6 53-96-3 56-53-1 56-57-5 57-50-1, biological studies  
 57-57-8 59-89-2 60-11-7 61-82-5 63-68-3, biological studies  
 67-21-0 67-66-3, biological studies 68-12-2, biological  
 studies 71-55-6 79-44-7 86-30-6 91-59-8 92-87-5 94-59-7  
 95-53-4, biological studies 96-45-7 96-48-0 101-14-4 101-21-3  
 101-25-7 106-89-8, biological studies 120-12-7, biological studies  
 129-00-0, biological studies 134-32-7 302-01-2, biological studies  
 495-48-7 547-58-0 592-62-1 680-31-9, biological studies 781-43-1  
 2465-27-2 14073-00-8 28322-02-3 54827-17-7  
 RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)  
 (mutagenicity of, **DNA polymerase**-deficient  
 Escherichia coli inhibition assay for)

IT 68-12-2, biological studies  
 RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)  
 (mutagenicity of, **DNA polymerase**-deficient  
 Escherichia coli inhibition assay for)

RN 68-12-2 HCAPLUS  
 CN Formamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



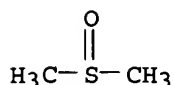
L141 ANSWER 29 OF 29 HCAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1975:528150 HCAPLUS  
 DN 83:128150  
 ED Entered STN: 12 May 1984  
 TI Effects of organic solvents on Escherichia coli **DNA polymerase III**  
 AU Heinze, John E.; Carl, Philip L.  
 CS Dep. Microbiol., Univ. Illinois, Urbana, IL, USA  
 SO Biochimica et Biophysica Acta (1975), 402(1), 35-40  
 CODEN: BBACAQ; ISSN: 0006-3002  
 DT Journal  
 LA English  
 CC 7-3 (Enzymes)  
 AB The polymerizing ability of E. coli **DNA polymerase III**  
 was enhanced by a variety of water-miscible organic solvents of which Me2SO  
 at 17% (volume/volume) was the most effective tested. The extent of  
 stimulation depended on the organic solvent used and its concentration, but  
 showed  
 no obvious correlation with the chemical structure of the solvent or its  
 dielec. constant Kinetic studies indicated that the mechanism of  
 stimulation is complex.

ST **DNA polymerase** activation ethanol; org solvent  
**DNA polymerase**

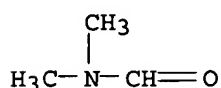
IT 56-81-5, biological studies 64-17-5, biological studies 67-56-1,  
 biological studies 67-63-0, biological studies 67-64-1, biological  
 studies 67-68-5, biological studies 68-12-2,  
 biological studies 71-23-8, biological studies 75-65-0 78-83-1  
 78-92-2 123-91-1  
 RL: BIOL (Biological study)  
 (DNA polymerase III response to)

IT 37217-33-7  
 RL: BIOL (Biological study)

(of Escherichia coli, organic solvents effect on)  
 IT 67-68-5, biological studies 68-12-2, biological studies  
 RL: BIOL (Biological study)  
 (DNA polymerase III response to)  
 RN 67-68-5 HCAPLUS  
 CN Methane, sulfinylbis- (9CI) (CA INDEX NAME)



RN 68-12-2 HCAPLUS  
 CN Formamide, N,N-dimethyl- (8CI, 9CI) (CA INDEX NAME)



IT 37217-33-7  
 RL: BIOL (Biological study)  
 (of Escherichia coli, organic solvents effect on)  
 RN 37217-33-7 HCAPLUS  
 CN Nucleotidyltransferase, deoxyribonucleate, III (9CI). (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

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 DICTIONARY FILE UPDATES: 25 MAY 2005 HIGHEST RN 851163-60-5

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 \*  
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L142 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2005 ACS on STN

RN 67-71-0 REGISTRY

ED Entered STN: 16 Nov 1984

CN Methane, sulfonylbis- (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Methyl sulfone (6CI, 8CI)

OTHER NAMES:

CN Dimethyl sulfone

CN Dimethyl sulphone

CN Lignisul MSM

CN Methylsulfonylmethane

CN MSM

CN NSC 63345

FS 3D CONCORD

DR 54841-73-5

MF C2 H6 O2 S

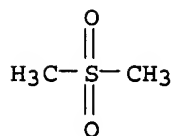
CI COM

LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BEILSTEIN\*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, DDFU, DETHERM\*, DRUGU, EMBASE, GMELIN\*, HODOC\*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK\*, MSDS-OHS, NAPRALERT, NIOSHTIC, PIRA, PROMT, RTECS\*, SPECINFO, TOXCENTER, ULIDAT, USPAT2, USPATFULL, VTB

(\*File contains numerically searchable property data)

Other Sources: DSL\*\*, EINECS\*\*, TSCA\*\*

(\*\*Enter CHEMLIST File for up-to-date regulatory information)



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

1431 REFERENCES IN FILE CA (1907 TO DATE)

17 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

1431 REFERENCES IN FILE CAPLUS (1907 TO DATE)

49 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 142:417313

REFERENCE 2: 142:387078

REFERENCE 3: 142:379286

REFERENCE 4: 142:372923

REFERENCE 5: 142:360891  
REFERENCE 6: 142:340750  
REFERENCE 7: 142:340738  
REFERENCE 8: 142:335806  
REFERENCE 9: 142:335036  
REFERENCE 10: 142:318498

=> => d ide can

L143 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2005 ACS on STN

RN 67-68-5 REGISTRY

ED Entered STN: 16 Nov 1984

CN Methane, sulfinylbis- (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Methyl sulfoxide (8CI)

OTHER NAMES:

CN Demavet

CN Demeso

CN Demsodrox

CN Dimethyl sulfoxide

CN Dimethyl sulphoxide

CN Dimexide

CN Dimexidum

CN Dipirartril-tropico

CN DMS 70

CN DMS 90

CN DMSO

CN Dolicur

CN Domoso

CN Dromisol

CN Durasorb

CN Gamasol 90

CN Herpid

CN Hyadur

CN Infiltrina

CN Kemsol

CN NSC 763

CN Rimso 50

CN Sclerosol

CN Somipront

CN SQ 9453

CN Sulfinylbismethane

CN Syntexan

FS 3D CONCORD

DR 705301-21-9, 8070-53-9, 164071-41-4

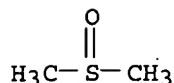
MF C2 H6 O S

CI COM

LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN\*, BIOBUSINESS,  
BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB,  
CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHM, CSNB,  
DDFU, DETHERM\*, DIOGENES, DIPPR\*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2,  
ENCOMPPAT, ENCOMPPAT2, GMELIN\*, HODOC\*, HSDB\*, IFICDB, IFIPAT, IFIUDB,  
IPA, MEDLINE, MRCK\*, MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM\*, PIRA,



PROMT, PS, RTECS\*, SPECINFO, TOXCENTER, TULSA, ULIDAT, USAN, USPAT2,  
USPATFULL, VETU, VTB  
(\*File contains numerically searchable property data)  
Other Sources: DSL\*\*, EINECS\*\*, TSCA\*\*, WHO  
(\*\*Enter CHEMLIST File for up-to-date regulatory information)



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

29388 REFERENCES IN FILE CA (1907 TO DATE)  
727 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
29445 REFERENCES IN FILE CAPLUS (1907 TO DATE)  
39 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 142:421941  
REFERENCE 2: 142:421415  
REFERENCE 3: 142:421270  
REFERENCE 4: 142:420057  
REFERENCE 5: 142:419964  
REFERENCE 6: 142:417313  
REFERENCE 7: 142:417246  
REFERENCE 8: 142:417223  
REFERENCE 9: 142:417152  
REFERENCE 10: 142:414539

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FOR DETAILS. <<<

=> d all abeq tech abex tot

L62 ANSWER 1 OF 5 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN  
AN 2005-180793 [19] WPIX  
CR 2002-657495 [70]  
DNC C2005-057858  
TI Polynucleotide amplification composition comprises polynucleotide  
amplification reaction mixture incorporated with low molecular weight  
compound of amides, sulfones, sulfoxides or diols to obtain the  
amplification at low temperature.  
DC B04 D16  
IN **CHAKRABARTI, R; SCHUTT, C**  
PA (CHAK-I) CHAKRABARTI R; (SCHU-I) SCHUTT C  
CYC 1  
PI US 2005042627 A1 20050224 (200519)\* 35 C12Q001-68 <--  
ADT US 2005042627 A1 CIP of US 2002-56917 20020125, Provisional US  
2003-451642P 20030304, Provisional US 2003-451650P 20030304, US  
2004-792404 20040303  
PRAI US 2004-792404 20040303; US 2002-56917 20020125;  
US 2003-451642P 20030304; US 2003-451650P 20030304  
IC ICM C12Q001-68  
ICS C12P019-34  
AB US2005042627 A UPAB: 20050321  
NOVELTY - Polynucleotide amplification composition comprises a  
polynucleotide amplification reaction mixture incorporated with a high  
concentration of a low molecular weight compound to obtain the  
amplification at low temperature. The low molecular weight compound is  
amides, sulfones, sulfoxides or diols.  
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a  
method for performing a polynucleotide amplification reaction at low  
temperature comprising adding to a polynucleotide amplification reaction  
mixture the low molecular weight compound in a concentration sufficient to  
accomplish the amplification at the low temperature.  
USE - For performing polynucleotide amplification reaction at low  
temperature (claimed).  
ADVANTAGE - The incorporation of the low molecular weight compound to  
the polynucleotide amplification reaction mixture enhances the  
amplification reaction.  
Dwg.0/16  
FS CPI  
FA AB; DCN  
MC CPI: B04-E01; B04-N04; B10-E04A; B10-E04C; D05-H12; D05-H18B  
TECH UPTX: 20050321  
TECHNOLOGY FOCUS - BIOTECHNOLOGY - Preferred Condition: The amplification  
reaction is performed using an extension temperature of not more than 62  
(preferably not more than 53)degreesC, or a denaturing temperature of not  
more than 85 (preferably not more than 75)degreesC. The polynucleotide  
amplification reaction is enhanced by a factor of at least 3 (preferably  
at least 5).  
ABEX UPTX: 20050321

SPECIFIC COMPOUNDS - The low molecular weight compound is 1,2-butanediol, 1,3-butanediol, 1,5-pentanediol, 1,6-hexanediol, ethylene glycol, 1,2-propanediol, 1,3-propanediol, 1,4-butanediol, 1,2-pentanediol, 2,4-pentanediol, 1,5-pentanediol, cis-1,2-cyclopentanediol, trans-1,2-cyclopentanediol, 1,2-hexanediol, or 2-methyl-2,4-pentanediol (claimed).

EXAMPLE - **Polymerase** chain reaction (PCR) enhancing capabilities of diol cosolvents were carried out using glycolipid transfer protein (GTP) as primary template. Standard protocol for annealing temperature and concentration gradient screening was followed. Additives of N-methylformamide, N,N-dimethylformamide, acetamide, N-methylacetamide, N,N-dimethylacetamide and propionamide were tested with GTP over annealing temperature gradients using 95degreesC denaturing temperature, and 1,5-pentanediol of 0.1-0.6M in 0.1M intervals cis-1,2-cyclopentanediol of 0.05-0.3 M in 0.05M intervals. The diol amplification data in GTP showed that 1,5-pentanediol performed best in the template with 0.16-0.47M effective concentration range and potency of 1.

L62 ANSWER 2 OF 5 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN  
 AN 2002-657495 [70] WPIX  
 CR 2005-180793 [19]  
 DNC C2002-184484  
 TI Composition, useful for enhancing **polymerase** chain reaction and other polynucleotide replication reactions, comprises low molecular weight organic amides, sulfones, or sulfoxides with template polynucleotides and **polymerases**.  
 DC B04 B05 D16  
 IN CHAKRABARTI, R; SCHUTT, C E  
 PA (UYPR-N) UNIV PRINCETON; (CHAK-I) CHAKRABARTI R; (SCHU-I) SCHUTT C E  
 CYC 100  
 PI WO 2002061137 A2 20020808 (200270)\* EN 64 C12Q001-68 <--  
 RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ  
 NL OA PT SD SE SL SZ TR TZ UG ZM ZW  
 W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK  
 DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR  
 KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT  
 RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM  
 ZW  
 US 2003039992 A1 20030227 (200318) C12Q001-68 <--  
 AU 2002241958 A1 20020812 (200427) C12Q001-68 <--  
 ADT WO 2002061137 A2 WO 2002-US2068 20020125; US 2003039992 A1 Provisional US  
 2001-264935P 20010130, Provisional US 2001-298166P 20010614, Provisional  
 US 2001-298250P 20010614, US 2002-56917 20020125; AU 2002241958 A1 AU  
 2002-241958 20020125  
 FDT AU 2002241958 A1 Based on WO 2002061137  
 PRAI US 2001-298250P 20010614; US 2001-264935P 20010130;  
 US 2001-298166P 20010614; US 2002-56917 20020125  
 IC ICM C12Q001-68  
 AB WO 200261137 A UPAB: 20050321  
 NOVELTY - A composition (C) for performing a polynucleotide replication reaction, comprises a buffer, one or more template polynucleotides, nucleotide triphosphates, one or more **polymerase** enzymes or its fragments, and one or more reaction adjuvants (I).  
 DETAILED DESCRIPTION - A composition (C) for performing a polynucleotide replication reaction, comprises a buffer, one or more template polynucleotides, nucleotide triphosphates, one or more **polymerase** enzymes or its fragments, and one or more reaction adjuvants of formula (I).  
 R1 = C or S;

R2 = H or CH<sub>3</sub>;

R3 = C or N;

R4, R5 and R6 = H, alkyl, alkyl or cycloalkyl of length n  
(substituted by cycloalkyl or halo-, hydroxy- or alkoxy);

R3, R4, R5 and R6 = together optionally form a cyclic structure; and  
X = =O or O=C=O.

Provided that:

- (i) when R1 is C, X is =O, R3 is N and R6 is absent;
- (ii) when R1 is S, X is =O or O=C=O, and R3 is C;
- (iii) R2 is H or CH<sub>3</sub>, when one or more of R4, R5 and R6 is not H;
- (iv) when R4, R5 and R6 are other than H, then R2 is an alkyl  
(unsubstituted or halo-, hydroxy- or alkoxy- substituted) or 3-8C  
cycloalkyl, when R1 is C or 2-8C when R1 is S; and
- (v) when 3-8C, then R1 is C or 2-8C, when R1 is S when any two of R2,  
R3, R4, R5 and R6 optionally form a cyclic structure in which cyclization  
is effected through a bond between them.

INDEPENDENT CLAIMS are also included for:

(1) Kit for performing a polynucleotide amplification reaction,  
comprising a container, one or more of (I) and instructions for using the  
one or more compounds in a polynucleotide replication reaction;

(2) A method of performing a polynucleotide replication reaction in  
the presence of (I)

USE - (C) is useful for performing a polynucleotide replication  
reaction, preferably an amplification reaction, such as **polymerase**  
chain reaction, nucleic acid sequence based amplification,  
transcription-based amplification system, self-sustained sequence  
replication, ligation amplification reaction, Q- beta replicase  
amplification and ligase chain reaction.

The adjuvants are also useful for optimizing a polynucleotide  
replication reaction for a polynucleotide, by providing several reaction  
adjuvant comprising the compounds, performing several polynucleotide  
replication reactions on the polynucleotide, each reaction being performed  
under equivalent conditions, but with varying type or amount of the  
reaction adjuvants in the reactions, and selecting the type and  
concentration of reaction adjuvant that yields the most favorable results  
for polynucleotide replication of the selected polynucleotide template,  
thus optimizing the polynucleotide replication reaction for the selected  
polynucleotide template (claimed).

The compositions and methods are useful in reverse transcriptase (RT)  
**PCR**, site-specific mutagenesis, **PCR**-based labeling of  
oligonucleotides, rapid amplification of cDNA ends, cloning/expression of  
DNA, genomic sequencing, DNA computing, which uses an amplification step  
as a central component, RT reactions on templates with secondary  
structure, denaturing gradient gel electrophoresis, medical diagnostics,  
quantitative **PCR**, amplification of tandem repeats in a genome,  
in situ **PCR**, and in forensics where sample sizes is limited and  
copy number is low.

ADVANTAGE - Use of the compositions enables production of multiple  
copies of target genes or other nucleic acid sequences with high yield and  
specificity. The compositions increase specificity and yield in the  
amplification of GC rich targets which are difficult to amplify.

Dwg.0/4

FS CPI

FA AB; GI; DCN

MC CPI: **B04-L04A**; B07-D03; B07-D06; B07-E03; B10-A01; B10-D01;  
B10-D03; B10-F01; B10-F02; B12-K04A;  
B12-K04F; D05-A02B; D05-H09; D05-H12;  
D05-H12D1; D05-H18

TECH UPTX: 20021031

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Composition: The reaction

adjuvant is preferably 2-pyrrolidone, N-methyl pyrrolidone and N-hydroxyethyl pyrrolidone, delta-valerolactam, epsilon-caprolactam, N-formyl morpholine, propionamide or N,N-dimethyl acetamide.

The **polymerase(s)** or its fragments is Taq, Tth, Tme, Tli, Pfu **polymerase**, DNA **polymerase** I, Klenow fragment or reverse transcriptase.

The reaction adjuvant has a potency of at least 75% of the potency of dimethyl sulfoxide (DMSO) or formamide, or a specificity of at least 80% of the specificity of DMSO or formamide in an equivalent polynucleotide chain reaction (PCR). The adjuvant has an effective range spanning at least 0.1 M. The polynucleotide template comprises greater than 50% G+C.

Preferred Kit: The kit further comprises one or more of a polynucleotide replication reaction buffer, nucleotide triphosphates, oligonucleotide primers, a known template polynucleotide for use as a control and one or more **polymerase** enzymes. The kit is customized for performing amplification reactions.

ABEX UPTX: 20021031

SPECIFIC COMPOUNDS - (I) is specifically claimed as **tetramethylene sulfone**, **tetramethylene sulfoxide**, methyl sulfone, ethyl sulfone, n-propyl sulfone, n-propyl sulfoxide or methyl sec-butyl sulfoxide.

EXAMPLE - The effects of sulfone additives on **polymerase** chain reaction (PCR) amplification were studied using three different GC-rich templates. Methyl sulfone, ethyl sulfone, n-propyl sulfone, **tetramethylene sulfone**, butadiene sulfone (**sulfolane**), 2,4-dimethylsulfolane, dimethyl sulfoxide (DMSO) and betaine were tested.

PCR was carried out using 10 mM Tris-HCl (pH 8.8), 50 mM potassium chloride (KCl), 1.5 mM magnesium chloride (MgCl<sub>2</sub>), 0.01% (w/v) gelatin, 0.2 micromolar primers, 0.06 ng/microl template, 0.2 mM each dNTP, 0.04 U/microl Taq **polymerase**. The templates used were a 996 bp segment of human myeloid leukocyte c-jun cDNA, a 511 bp segment of human prostate-specific membrane antigen (PSM) cDNA, and bovine brain glycolipid transfer protein (GTP) cDNA (660 bp). c-jun primer j1: d(ATGACTGCAAAGATGGAAACG), primer j2: d(TCAAAATGTTTGCAACTGCTGCG), PSM primer p1: d(AAACACTGCTGTGGTGGGA), primer p2: d(TAGCTCAACAGAATCCAGGC), GTP primer g1: d(GAATTCGAAATGGCGCTGCTGG) or primer g2: d(CTCGAGGTCCAGAGTACCCGCTGTG).

A 996 bp segment of human myeloid leukocyte c-jun cDNA (64% GC) was selected as the central target for this investigation because of its particularly high GC content. Each of the additives was initially tested with c-jun at a few evenly-spaced concentrations over a 44-58degreesC annealing temperature gradient, using a conventional denaturing temperature of 92degreesC. The only compound that yielded discernable amplification under these denaturing conditions was **sulfolane**. None of the other additives tested - DMSO, betaine, or the other sulfones - showed any amplification.

A denaturing temperature of 95degreesC was employed in order to examine the capabilities of the other compounds in amplifying c-jun under less stringent conditions. Again, each additive was tested over a 44-58degreesC annealing temperature gradient, at a few concentrations that were chosen to provide a rough perception of the effective range of the compounds and also to determine whether the optimal annealing temperature was sensitive to additive concentration. It was found that the optimal annealing temperature of each compound, except betaine, was 50degreesC and did not depend on concentration. In the case of betaine, the optimal annealing temperature was 53degreesC. n-Propyl sulfone and dimethylsulfolane were found to be ineffective at any of the concentrations tested in these initial screenings, and were omitted from further studies.

Each remaining additive was subsequently tested over a range of closely spaced molar concentrations at their optimal annealing temperatures. These concentrations, chosen partly on the basis of the concentrations that were effective in the initial screenings, were as follows: methyl sulfone - 0.2-1.0M at 0.1M intervals; ethyl sulfone - 0.2, 0.3, 0.4M; **sulfolane** - 0.05M and 0.1-0.7M at 0.1M intervals; sulfolene - 0.05M and 0.1-0.4M at 0.1M intervals, DMSO - 0.2-1.9M at 0.1M intervals; betaine - 0.3-1.0M at 0.1M intervals and 1.5-3.0 at 0.5M intervals. The additives that performed best in the c-jun studies - methyl sulfone, **sulfolane** and DMSO were chosen for additional studies using two more DNA targets: PSM cDNA and bovine GTP cDNA (660 bp). As in the case of c-jun, the additives were first tested at a few concentrations over an annealing temperature gradient of 44-58degreesC, and then at various concentrations at their optimal annealing temperatures (48degreesC for PSM, 50degreesC for GTP). The additive concentration that yielded the maximum target band amplification was found in each case to display a specificity that was within 2% of the best specificity.

L62 ANSWER 3 OF 5 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN

AN 2002-010797 [01] WPIX

DNC C2002-002654

TI Amplifying a target nucleic acid, useful in e.g. research and forensic science, by combining a target nucleic acid with reversibly modified nucleic acid primers and nucleoside triphosphates to inhibit formation of undesired products.

DC B04 D16

IN BONNER, A G

PA (BIOL-N) BIOLINK PARTNERS INC

CYC 95

PI WO 2001075139 A1 20011011 (200201)\* EN 45 C12P019-34

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ  
NL OA PT SD SE SL SZ TR TZ UG ZW

W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK  
DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ  
LC LK LR LS LT LU LV MA MD MG MN MW MX MZ NO NZ PL PT RO RU SD  
SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

AU 2001053129 A 20011015 (200209) C12P019-34

US 2003162199 A1 20030828 (200357) C12Q001-68 <--

ADT WO 2001075139 A1 WO 2001-US10901 20010403; AU 2001053129 A AU 2001-53129  
20010403; US 2003162199 A1 Provisional US 2000-194288P 20000403, Cont of  
WO 2001-US10901 20010403, US 2002-264295 20021003

FDT AU 2001053129 A Based on WO 2001075139

PRAI US 2000-194288P 20000403; US 2002-264295 20021003

IC ICM C12P019-34; C12Q001-68

ICS C07H021-04; C07H021-100

AB WO 200175139 A UPAB: 20020105

NOVELTY - Amplifying a target nucleic acid, comprising combining a target nucleic acid with one or more nucleic acid primers and nucleoside triphosphates which have been reversibly modified to inhibit the formation of undesired amplification products, under conditions allowing amplification to occur, is new.

DETAILED DESCRIPTION - Amplifying a target nucleic acid comprises combining a target nucleic acid with one or more nucleic acid primers capable of binding to the target nucleic acid, a nucleic acid **polymerase**, and several nucleoside triphosphates, where the target nucleic acid, primers and nucleoside triphosphates have been reversibly modified to inhibit the formation of undesired amplification products, thus forming a resultant mixture resulting in the selective amplification of the target nucleic acid.

INDEPENDENT CLAIMS are also included for the following:

(1) an amplified nucleic acid produced by the novel method;  
 (2) a kit for conducting **polymerase** chain reaction (**PCR**) comprising a reagent for reversibly chemically modifying a nucleic acid or nucleobase so that when the nucleic acid is used in the reaction, the formation of undesired amplification products is inhibited, and instructions for use; and

(3) a compound which can amplify a target nucleic acid and reduce undesired amplification products, comprising a reaction mixture of a removable protecting group and guanosine 5'-triphosphate.

**USE** - The amplification method is also advantageously used to amplify virtually any target nucleic acid such as a nucleic acid fragment, gene fragment, cDNA or chromosomal fragment. The methods and compositions permit the detection and amplification of small amounts of nucleic acid, and as such are applicable to diagnostic applications, research and forensic science. The methods and compositions are also useful to detect or characterize nucleic acid sequences associated with infectious diseases, genetic and non-genetic disorders, or cellular disorders such as cancer; and to detect viral nucleic acid molecule within a nucleic acid sample derived from human cell sample, cancerous cells by detecting specific chromosomal rearrangements or changes in gene expression, and the sex or species of origin of even minute biological samples. These are also used in research applications in which genetic analyses must be performed on limited amounts of nucleic acid sample or in the presence of background DNA. The reversibly modified nucleic acids are used to prevent or disrupt hybridization during routine sample preparation, and provide nuclease resistance to nucleic acids which may be applications in therapeutics. Hypersensitive protecting groups may provide improved approaches to drug delivery and gene therapy.

**ADVANTAGE** - The method does not require manipulation of the reaction mixture following initial preparation, may be used in existing automated **PCR** amplification systems and with in situ amplification methods where addition of reagents after the initial denaturation step is inconvenient or impractical.

Dwg.0/11

FS CPI

FA AB; DCN

MC CPI: B04-E01; B04-E05; **B04-L04**; B07-D04C; B10-A12B; B10-C04;  
**B10-F02**; **B12-K04F**; **D05-A02B**;  
**D05-H12D1**; **D05-H18B**

TECH UPTX: 20020105

**TECHNOLOGY FOCUS - BIOTECHNOLOGY - Preferred Method:** The reversibly modified target nucleic acid or primers comprise at least one nucleobase that has been reversibly modified chemically, where the primers are reversibly modified to inhibit the formation of undesired amplification products. The amplification which is by **PCR**, preferably hot-start **PCR**, results in a reduced amount of non-specific nucleic acid amplification products. The reversibly modified nucleobase comprises a removable protecting group selected from glyoxal dihydrate, glyoxal hydrogen sulfite, 2,3-dihydroxy-1,4-dioxane, pyruvaldehyde (methylglyoxal), 2,3-butanedione (dimethylglyoxal), 2,3-pentadione (ethylmethylglyoxal), phenylglyoxal, and di-3-pyridylglyoxal, preferably glyoxal. Alternatively, the removable protecting group is selected from 3,4,5,6,-tetrahydrophthalic anhydride, 3-ethoxy-2-ketobutyraldehyde (kethoxal), ninhydrin, hydroxyacetone, diethyl oxalate, diethyl me oxalate, 1,2-naphthoquinone-4-sulfonic acid, pyruvaldehyde, gamma-carboxyacetylamides, amidines and carbamates. The amide is a trifluoroacetyl or trichloroacetyl. The gamma-carboxyacetylamide is acontinoyl, maleyl, citriconyl, phenoxyacetyl or acetoacetyl. The amidine is imidoamide, and the carbamate is ethoxycarbonyl. The method also includes heating the resultant mixture for a time sufficient to remove the

protecting group. The resultant reaction mixture is subjected to at least one thermal cycle. The **polymerase** is an E. coli DNA **polymerase** I, TAQ **polymerase**, Klenow fragment of E. coli DNA **polymerase** I, reverse transcriptase, and thermostable DNA **polymerase**. The **polymerase** is a thermostable DNA **polymerase**.

Preferred Kit: The kit further comprises a nucleic acid primer or a nucleic acid **polymerase**, and at least one other component for conducting **polymerase** amplification reaction.

ABEX

UPTX: 20020105

EXAMPLE - 5' Dimethoxytrityl (DMT)-guanosine was prepared by allowing N6-isobutryl, 5'-dimethoxytrityl guanosine to stand in ammonium hydroxide at 55 degrees C for 12 hours. The product was isolated as an amorphous, white solid after removal of water and ammonia. The crude product was dissolved in 1 ml of dimethylformamide-water. Glyoxylated, 5'-DMT-guanosine was prepared by mixing the crude 5'-DMT-guanosine solution with glyoxal:water solution. The mixture was allowed to stand in a sealed tube at 55 degrees C for 2 hours, and product was analyzed by high performance liquid chromatography (HPLC). Glyoxylated, 5'-DMT-guanosine was purified by preparative reversed phase HPLC. Glyoxylated, 5'-DMT-guanosine was converted to DMT-guanosine by mixing equal volumes of glyoxylated 5'-DMT-guanosine solution and a buffer solution, allowing the mixture to stand at 55 degrees C in a sealed tube and aliquots were analyzed by HPLC using Gradient-1. Samples were analyzed at 260 nm with a Waters 600 Solvent Delivery system and a Waters 486 variable wavelength UV (ultraviolet) detector. A Vydac column was used with gradient of solvent A. Glyoxylated primers were purified by preparative, reversed phase HPLC using Gradient-2 with the Primer-1 mixture requiring 2 injections of 200 ml each. Samples were concentrated to dryness in a Speedvac at 55 degrees C, redissolved in 200 ml and frozen. Concentrations of glyoxylated primers were determined by comparison to the unmodified, primer stock solutions of known concentrations. The unmodified and glyoxylated primer solutions were analyzed by HPLC by Gradient-2 and the peak areas of these analyses were used to adjust the concentrations suitable for **polymerase** chain reaction (PCR). Analysis of the oligonucleotides by HPLC showed no discernible differences for the elution times of the primer and the glyoxylated primer. Since reversed phase HPLC was unable to resolve minor changes in the hydrophilic character of oligonucleotides. Oligonucleotides of any size and sequence from 3-30 residues typically eluted within a narrow range of solvent conditions on a reversed phase column. Use of the chemically modified glyoxylated primers without pre-incubation in the PCR protocol, resulted in a significant decrease in the intensity of the band corresponding to the amplified target sequence, and a significant decrease in the intensity of the bands corresponding to the non-specific amplification products. Use of the chemically modified glyoxylated primers with pre-incubation in the PCR protocol, resulted in a strong signal for the band corresponding to the amplified target sequence, and a decreased intensity of the bands corresponding to the non-specific amplification products compared to the results with unmodified primers.

L62 ANSWER 4 OF 5 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN

AN 2001-246729 [26] WPIX

DNC C2001-074354

TI Reversibly inactivating thermostable DNA **polymerase** or ligase for use in a PCR reaction or kit comprises mixing dried enzyme with anhydrous dicarboxylic acid in an anhydrous aprotic solvent.

DC B04 D16

IN LOUWRIER, A

PA (ADBI-N) ADVANCED BIOTECHNOLOGIES LTD



CYC 27  
 PI EP 1078984 A1 20010228 (200126)\* EN 10 C12N009-99  
 R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT  
 RO SE SI  
 GB 2353530 A 20010228 (200126) C12N009-99  
 GB 2353530 B 20010627 (200137) C12N009-99  
 JP 2002199877 A 20020716 (200261)# 7 C12N009-12  
 US 6479264 B1 20021112 (200278) C12N009-00  
 ADT EP 1078984 A1 EP 2000-307337 20000825; GB 2353530 A GB 2000-21086  
 20000825; GB 2353530 B GB 2000-21086 20000825; JP 2002199877 A JP  
 2000-364771 20001130; US 6479264 B1 US 2000-649707 20000825  
 PRAI GB 1999-20194 19990827; JP 2000-364771 20001130  
 IC ICM C12N009-00; C12N009-12; C12N009-99  
 ICS C08H001-00; C12N015-09; C12P019-34; C12Q001-48; C12Q001-68  
 AB EP 1078984 A UPAB: 20010515  
 NOVELTY - Reversibly inactivating thermostable DNA **polymerase** or  
 ligase comprising mixing dried enzyme with anhydrous dicarboxylic acid in  
 an anhydrous aprotic solvent, is new.  
 DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the  
 following:  
 (1) a reversibly inactivated DNA **polymerase** or ligase  
 produced by the method; and  
 (2) a **PCR** kit comprising the reversibly inactivated DNA  
**polymerase**.  
 USE - The method produces a reversibly inactivated thermostable DNA  
**polymerase** or ligase (claimed). The **polymerase** can be  
 incorporated into a **PCR** kit (claimed).  
 ADVANTAGE - The reversibly denatured **polymerase** can be heat  
 reactivated prior to a **PCR** reaction and thus overcomes the  
 problem of non-specific primer annealing and extension. The method  
 excludes water and therefore does not suffer from pH based denaturation of  
 the enzyme and is more rapid (5 hours rather than 12 hours) than prior art  
 methods.  
 Dwg.0/4  
 FS CPI  
 FA AB; DCN  
 MC CPI: B04-E01; B04-E05; B04-L04A; B04-L08; B11-C08E3; B11-C08E5;  
 B11-C09; B12-K04; B12-K04F; D05-H18B;  
 D05-H19B  
 TECH UPTX: 20010515  
 TECHNOLOGY FOCUS - BIOTECHNOLOGY - Preferred Method : The dried  
**polymerase** or ligase (less than 5-10% in the presence of  
 lyoprotectants) is first suspended in the aprotic organic solvent and the  
 anhydrous dicarboxylic acid (e.g. citraconic anhydride or cis-aconitic  
 anhydride) is added subsequently. The reaction takes place at a  
 temperature greater than 30 degreesC. The solid phase comprising the  
 inactivated enzyme is then recovered and washed with an organic solvent  
 (e.g. hexane) before being dried.  
 TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Solvent: The aprotic  
 solvents are t-methyl butyl ether (t-MBE), butyl ether, carbon  
 tetrachloride, cyclohexanone, ethyl acetate, methyl ethyl ketone, methyl  
 pentanone, propyl ether, pyridine and sulfolane.  
 ABEX UPTX: 20010515  
 EXAMPLE - 50000 units of DNA **polymerase** from *Thermus aquaticus*  
 was vacuum dried in 2% sucrose as lyoprotectant in double-distilled,  
 de-ionized water. The dried enzyme was then added to 5 ml anhydrous  
 t-methyl butyl ether (t-MBE), 5% v/v, and an excess of citraconic  
 anhydride added to modify the lysine groups. The reaction was incubated at  
 37 degreesC for 5 hours after which the powder was washed 4 times with 10

ml hexane. The enzyme was stored at -20 degreesC either as a powder or in storage buffer (20 mM Tris-HCl, 100 mM potassium chloride, 0.1 mM ethylenediamine-tetraacetic acid, 1 mM dithiothreitol, 0.5% (v/v) Tween 20, 0.5% Nonidet P40, 50% glycerol, pH 9.2) at a concentration of 5 units/mul.

The enzyme was then reactivated by incubation at 95 degreesC for 15 minutes prior to performing PCR on human DNA using beta-actin primers:

(i) 5' ATTTGCGGTGGACGATGGAG 3'

(ii) 5' AGAGATGGCCACGGCTGCTT 3'

The reactivated enzyme produced the desired product whereas a control with no activation step produced no product.

L62 ANSWER 5 OF 5 WPIX COPYRIGHT 2005 THE THOMSON CORP on STN

AN 1989-289783 [40] WPIX

DNC C1989-128255

TI New chemical labelling of nucleoside(s), and reagents for nucleic acid - comprises reacting e.g. DNA with luminol in the presence of an aldehyde or a ketone.

DC B04 D16

PA (SHMA) SHIMADZU SEISAKUSHO KK

CYC 1

PI JP 01213295 A 19890828 (198940)\* 6

ADT JP 01213295 A JP 1988-38342 19880219

PRAI JP 1988-38342 19880219

IC C07H019-00; C07H021-00; C12Q001-68

AB JP 01213295 A UPAB: 19930923

Cemical labelling of nuceosides, comprises reaction of a cpd. with a nucleoside molecule and luminol, in the presence of an aldehyde or a ketone, for introducing luminol to the nucleic acid base of the cpd.

The cpd. containing nucleosides is pref. DNA, RNA, or nucleoside or nucleotide. The nucleic acid base is pref. adenine, cytosine, thymine or uracyl. The aldehyde or ketone is prefer. formaldehyde, acetoaldehyde, propionealdehyde, butylaldehyde, acetone, ethylmethylketone, ethylrpopylketone, butylmethylketone, or diethylketone.

USE/ADVANTAGE - Used for reagents of nucleic acid marking and nucleic acid samples.

0/0

FS CPI

FA AB; DCN

MC CPI: B04-B03; B04-B04A1; B06-D06; B10-D01; B10-F02; B11-C07B; B12-K04; D05-H09; D05-H12

=> d his

(FILE 'HOME' ENTERED AT 10:31:06 ON 26 MAY 2005)

SET COST OFF

FILE 'WPIX' ENTERED AT 10:31:17 ON 26 MAY 2005

L1 10779 S (B10-F? OR C10-F?)/MC

E TETRAMETHYLENE/DCN

E TETRAMETHYLENE/CN

L2 2 S E5,E6

L3 551 S (R19515 OR R01076)/DCN OR 1076/DRN

L4 46 S (TETRAHYDROTHIOPHEN# S OXIDE OR TETRAMETHYLENE SULFOXIDE OR T

L5 26 S (TETRAMETHYLENE SULPHOXIDE OR TETRAMETHYLENESULPHOXIDE)/BIX

L6 912 S (SULFOLAN# OR TETRAHYDROTHIOPHENE 1 1 DIOXIDE OR TETRAMETHYLE

L7 1432 S (SULPHOLAN# OR TETRAMETHYLENE SULPHONE OR TETRAMETHYLENESULFO  
E METHYLSULFONE/DCN

E METHYL SULFONE/DCN  
 E ETHYL SULFONE/DCN  
 E ETHYLSULFONE/DCN  
 E METHYL SULFONE/CN  
 E ETHYL SULFONE/CN  
 E PROPYL SULFONE/CN  
 E PROPYLSULFONE/CN  
 E PROPYL SULFOXIDE/DCN  
 E PROPYL SULFOXIDE/CN  
 E METHYL SEC BUTYL SULFOXIDE/DCN  
 E METHYL SEC-BUTYL SULFOXIDE/DCN  
 E METHYL SEC-BUTYL SULFOXIDE/CN  
 L8 13241 S L1,L3-L7  
 L9 1 S US20030039992/PN  
 E R14680+ALL/DCN  
 L10 35 S E1  
 E R00776+ALL/DCN  
 E R07542+ALL/DCN  
 L11 33 S E1  
 E R01414+ALL/DCN  
 L12 604 S E1 OR 1414/DRN  
 E R10815+ALL/DCN  
 L13 2 S E1  
 E THILANE/DCN  
 E THIOLANE/DCN  
 E R05268+ALL/DCN  
 L14 1430 S E1  
 E R11390+ALL/DCN  
 L15 56 S E1  
 E R01084+ALL/DCN  
 L16 1171 S E1 OR 1084/DRN  
 E R08167+ALL/DCN  
 L17 28 S E1  
 E R04880+ALL/DCN  
 E R18618+ALL/DCN  
 L18 11 S E1  
 E R19515+ALL/DCN  
 L19 20 S E1  
 E RA013I/SDCN  
 L20 1 S E3  
 E RA01NW/SDCN  
 L21 1 S E3  
 E RA012P/SDCN  
 L22 1 S E3  
 E RA00NS/SDCN  
 L23 1 S E3  
 E RA4ZYK/SDCN  
 L24 1 S E3  
 L25 8 S RA4ZYK/DCN  
 E RA00GC/SDCN  
 L26 1 S E3  
 E RA1YH4/SDCN  
 L27 1 S E3  
 L28 4 S RA1YH4/DCN  
 E 0074-53301/SDCN  
 L29 15786 S L8,L10-L19,L25,L28  
 L30 73 S L29 AND C12Q001-68/IPC  
 L31 93 S L29 AND (RA013I OR RA01N2 OR RA012P OR RA00N2)/DCN  
 L32 3 S L29 AND (B04-L04A OR C04-L04A)/MC  
 L33 4 S L29 AND (B04-B02C4 OR C04-B02C4)/MC

L34 28 S L29 AND (B04-L04# OR C04-L04#)/MC  
L35 72 S L29 AND RA00GC/DCN  
L36 30 S L29 AND ?POLYMERASE?/BIX  
L37 120 S L32-L36  
L38 14 S L29 AND D05-A02B/MC  
L39 126 S L37,L38  
L40 23 S L39 AND (B12-K04 OR C12-K04 OR B12-K04F OR C12-K04F)/MC  
L41 110 S L29 AND D05-H12?/MC  
L42 35 S L29 AND D05-H18?/MC  
L43 24 S L42 AND L39-L41  
L44 12 S L32,L35 AND L40  
SEL DN AN 6 10  
L45 2 S L44 AND E1-E4  
L46 62 S L32,L35 NOT L44  
L47 110 S L39-L41 NOT L42-L46  
SEL DN AN 106 L47  
L48 1 S L47 AND E5-E6  
L49 35 S L29 AND PCR/BIX  
SEL DN AN 29 31  
L50 2 S L49 AND E7-E10  
L51 4 S L45,L48,L50  
E CHAKRFABARTI/AU  
E CHAKRABARTI/AU  
L52 36 S E23,E24  
E SCHUTT/AU  
L53 11 S E8-E10  
L54 45 S L52,L53  
L55 1 S L54 AND L29  
L56 3 S L54 AND C12Q/IPC  
L57 2 S L54 AND (?POLYMERASE? OR PCR)/BIX  
L58 1 S L54 AND (B04-L04A OR C04-L04A)/MC  
L59 3 S L55-L58  
L60 2 S L59 NOT LEUKAEMIA/TI  
L61 5 S L51,L60  
L62 5 S L1-L60 AND L61

FILE 'WPIX' ENTERED AT 11:13:10 ON 26 MAY 2005

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